№ 90699

JVC

CR-4900E

SECTION 4
CHARTS AND DIAGRAMS

4.1 KEY TO ABBREVIATIONS

A	AC	: Alternating Current
	ACC	: Automatic Color Control
	A/CTL	: Audio/Control
	ADD	: Adder
	ADC	: Analog to Digital Converter
	ADJ	: Adjustment
	A DUB	: Audio Dubbing
	AE	: Audio Erase
	AEF	: Automatic Editing Function
	AFC	: Automatic Frequency Control
	AFT	: Automatic Fine Tuning
	AGC	: Automatic Gain Control
	AH	: Audio Head
	AHD	: Audio High Density
	AL	: After Loading
	ALC	: Automatic Ligh Compensation Automatic Level Control
	A/S/M	: Audio/Servo/Mechacon
	ALM	: Alarm
	ALU	: Arithmetic Logic Unit
	AM	: Amplitude Modulation
	AMP	: Amplifier
	ANT	: Antenna
	APC	: Automatic Pedestal Control Automatic Phase Control
	APL	: Average Picture Level
	ASS'Y	: Assembly
	ATT	: Attenuator
	AUTO	: Automatic
	AUX	: Auxiliary
	AUD	: Audio
B	B	: Base
	BAL	: Balance
	BATT	: Battery
	BBD	: Bucket Brigade Device
	BCD	: Binary Coded Decimal
	BEG	: Beginning
	BFP	: Burst Flag Pulse
	BIT	: Binary Digit
	BLK	: Black
	BLU	: Blue
	BNC	: Bayonet Connector
	BOT	: Beginning of Tape
	BPF	: Bandpass Filter
	BRK	: Brake
	BRN	: Brown
	BRT	: Brightness
	B. SOL	: Brake Solenoid
	BT	: Band Tuning
	BW or B/W	: Black and White
C	C	: Capacitance
	CAP	: Capstan
	CAR	: Carrier
	CASS	: Cassette
	CCT	: Circuit
	CdS	: Canmium Sulphide
	CD	: Countdown
	CF	: Ceramic Filter, Color Frame
	CC	: Cassette Compartment
	CE	: Chip Enable
	CH	: Channel
	CHG	: Charge
	CHROMA	: Chrominance
	CLK	: Clock
	CLR	: Clear
	CMOS	: Complementary Metal Oxide Silicon
	CMD	: Command
	CNT	: Count, Counter
	CONV	: Converter
	COL	: Color
	COM	: Common
	COMB	: Combination Comb Filter
	COMP	: Comparator Composite Compensation
	CONN	: Connector
	COUNT	: Counter
	COUNT SEA	: Counter Search
	C. PAUSE	: Camera Pause
	C. SW	: Cassette Switch
	CTC	: Crosstalk Cancel
	CPU	: Central Processing Unit
	CTL	: Control
D	D	: Drum
	DAC	: Dightal to Analog Converter
	dB	: Decibel
	DC	: Direct Current
	DD	: Direct Drive
	DEC	: Decoder
	DEMOD	: Demodulator
	DEMUX	: Demultiplexer
	DET	: Detector
	DEV	: Deviation
	DFRS	: Drum Free RUN STOP
	DIF TRANS	: Differential Transformer
	DISCR	: Discriminator
	DL	: Delay Line
	DOC	: Dropout Compensator
	D. PU	: Drum Pick-up
	DRUM FF	: Drum Flip Flop
	DUB	: Dubbing
	DYAC	: Dynamic Aperture Control
E	E	: Edit
	EDP	: Electronic Data Processing
	E-E	: Electric to Electric
	EF	: Emitter-Follower
	EMP	: Emphasis
	ENC	: Encoder
	EN	: Enable
	ENV	: Envelope
	EOT	: End of Tape
	EP	: Extended Play
	EQ	: Equalizer
	ES	: Electronic Switch
	E SW	: Electronic Switch
	ESNS	: End Sensor
	EXP	: Expander
	EXT	: External
F	F	: Farad : Fuse
	F ADV	: Frame Advance
	FDP	: Fluorescent Display Panel
	FE	: Full Erase
	FET	: Field Effect Transistor
	FF	: Fast Forward Flipflop
	FG	: Frequency Generator
	FM	: Frequency Modulation
	FMA	: FM Audio
	FR	: Full Recording, Frame
	FREQ	: Frequency
	F-V CONV	: Frequency to Voltage Converter
	FWD	: Forward
G	G	: Green
	GEN	: Generator
	GND	: Ground
	GRN	: Green
	GRY	: Gray
H	H	: High
	HBF	: Horizontal Burst Flag
	HD	: Horizontal Drive : Horizontal Discriminator
	HG	: Haall Generator
	HP	: Highpass Filter
	HPF	: Highpass Filter
	H TRAP	: Horizontal Trap
	Hz	: Herz
I	IC	: Integrated Circuit
	ID	: Identification (Pulse)
	IF	: Intermediate Frequency
	IFR	: Infrared
	IFT	: Intermediate Frequency Transfomer
	IND	: Indicator
	INH	: Inhibit
	INS	: Insert
	INT	: Internal, Interrupt
	INV	: Inverter
	I/O	: Input/Output
	IR	: Infrared
L	L	: Low
	LE	: Loading End
	LED	: Light Emitting Diode
	LIN	: Linearity
	LIM	: Limiter
	LOAD	: Loading
	LP	: Long Play
	LPF	: Lowpass Filter
	LSB	: Lower Sidedband
M	M	: Motor
	MAX	: Maximum
	MDA	: Motor Drive Amplifier
	MECHACON	: Mechanism Control
	MIC	: Microphone
	MIN	: Minimum
	MIX	: Mixer
	MMV	: Monostable Multivibrator
	MOD	: Modulation
	MODEM	: Modulator-Demodulator
	MON	: Monitor
	MOS	: Metal Oxide Silicon
	MOT	: Motor
	MPX	: Multiplexer
	MS	: Mode Select
	MUT	: Muting
N	NAND	: Not-And
	NC	: Not Connected
	NFB	: Negative Feedback
	NLN	: Non-Linear
	NO	: Normally Open
	NON-LIN	: Non-Linear
	NOR	: Normal
O	OPAMP	: Operational Amplifier
	OP	: Operation
	ORN	: Orange
	OSC	: Oscillator
P	PB	: Playback
	PC	: Photocoupler
	PCM	: Pulse Code Modulation
	PGM	: Program
	PG	: Pulse Generator
	PI	: Photo Interrupter
	PLL	: Phase Locked Loop
	p-p	: Peak-to-Peak
	POS	: Position
	PR	: Pinch Roller
	PREAMP	: Preamplifier
	PREV	: Preview
	PRL	: Preroll
	P/S	: Pause/Still
	PSC	: Pulse Swallowing Control
	P TR	: Power Transistor
	PU	: Pickup
	PWB	: Printed Wiring Board
	PWM	: Pulse Width Modulation
	PWR	: Power
Q	Q	: Quality Factor
R	R	: Red
	RA	: Rsistor Array
	R.A.	: Random Access
	RAM	: Random Access Memory
	REC	: Recording
	REG	: Regulated
	REMOCON	: Remote Control (Unit)
	REV	: Reverse
	REW	: Rewind
	RF	: Radio Frequency
	RS FF	: RS Flipflop
	RST	: Reset
	R/P	: Record/Playback
	RPT	: Repeat
	RT	: Rotary Transformer
	RUN	: Running
	RUN IND	: Run Indicator
	RY	: Relay
S	SAFE	: Safety
	SC	: Subcarrier Simulcast
	SAW	: Sawtooth
	SCH	: Search
	SEAR	: Search
	SEC	: Second
	SEL	: Select
	SENS	: Sensor
	SEP	: Separator
	SF	: Source Follower
	SFF	: Short Fast Forward
	SFWD	: Search Forward
	SIF	: Sound Intermediate Frequency
	SN	: Signal to Noise Ratio
	SOL	: Solenoid
	SOS	: Sound on Sound
	SP	: Standard Play
	SR	: Supply Reel
	SREV	: Search Reverse
	SREW	: Short Rewind
	S/S	: Slow/Still
	SSG	: Sync Signal Generator
	S. SENS	: Start Sensor
	S. SEP	: Sync Separator
	STL	: Still
	SSNS	: Start Sensor
	SUP	: Supply
	SW	: Switch
	SWD	: Switched
	SYNC	: Synchronization
	SYSCON	: System Control
T	TAL	: Tally
	TBC	: Time Base Corrector
	TC	: Tension Compensate : Tension Control : Time Code
	T. DODE	: Time Code
	T. EALM	: Tape End Alarm
	TEN	: Tension
	TIM	: Timing
	TK	: Tracking
	TP	: Test Point
	TR	: Transistor : Transformer : Tracking
	TRANS	: Transformer
	TRC. M	: Tracking Meter
	T. REC	: Timer Record
	T. SW	: Timer Switch
	T/T	: Tuner/Timer
	TU	: Take-up
	TU. R	: Take-up Reel
U	UL	: Unloading
	UNLD	: Unloading
	UNREG	: Unregulated
	UNSW	: Unswitched
	UNSWD	: Unswitched
V	V	: Volt : Video : Vertical
	VCO	: Voltage Controlled Oscillator
	VD	: Vertical Drive
	VR	: Varable Resistor
	V. PULSE	: Vertical Pulse
	VS	: Video and Sync
	V. SEL	: Video Select
	VXO	: Variable Crystal Oscillator
	VLT	: Violet
	V/T	: Video/Television
	V/U	: VHF/UHF
	VSCH	: Variable Search
W	W	: Watt
	WHT	: White
	WV	: Working Voltage
	W & D	: White and Dark
	W/D	: White and Dark
	WARN	: Warning
X	XTL	: Crystal
Y	Y	: Luminance
	YEL	: Yellow
	YLW	: Yellow

– CIRCUIT IC BLOCK DIAG

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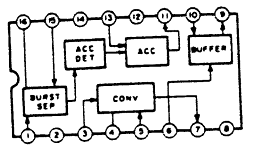

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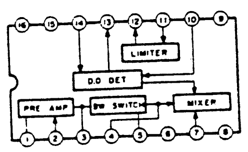

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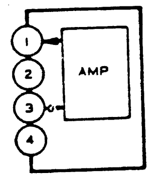

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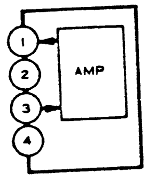

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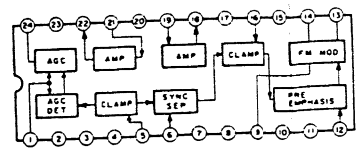

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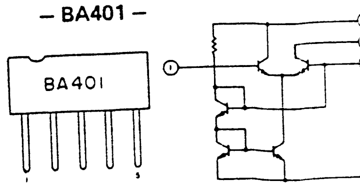

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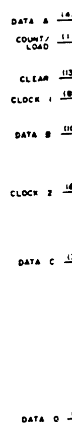

CP.- 4900E

:UIT IC BLOCK DIAGRAM –

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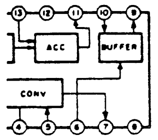
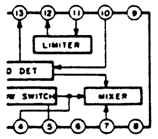
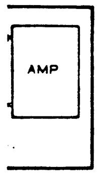

ACC
BUFFER
CONV

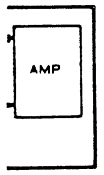
–


LIMITER
D DET
SWITCH
MIXER

'P –



3P –



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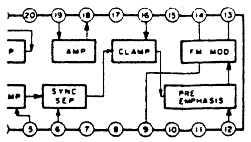
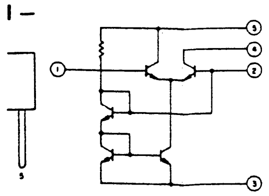

AMP
CLAMP
FM MOD
SYNC SEP
PRE EMPHASIS

I –



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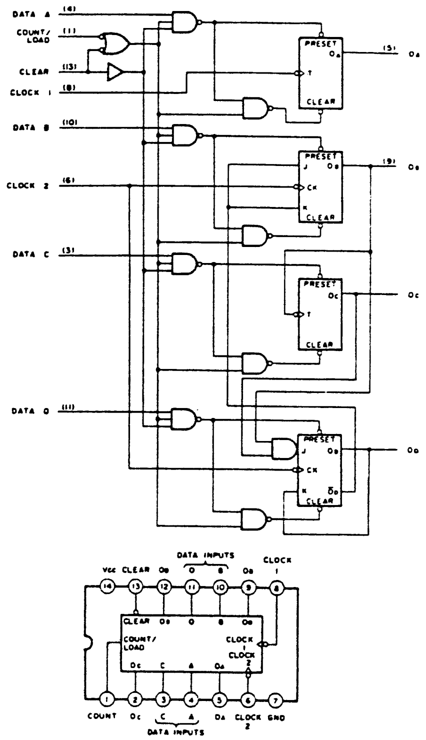
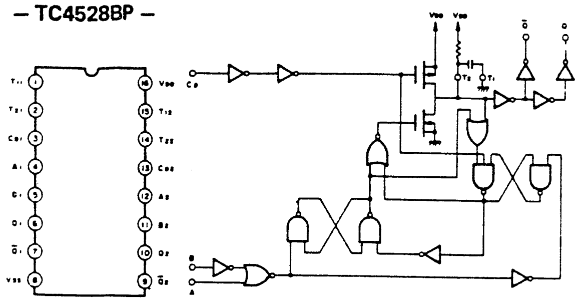

DATA A
COUNT/LOAD
CLEAR
CLOCK 1
DATA B
CLOCK 2
DATA C
DATA D
PRESET
CLEAR
DATA INPUTS
COUNT
CLOCK 2
GND

– TC4528BP –



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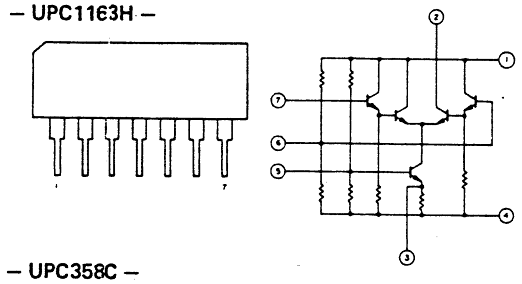

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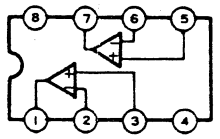
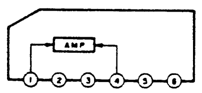


– 6A753 –



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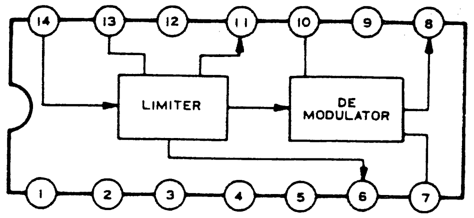
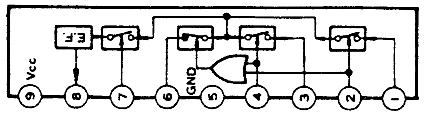
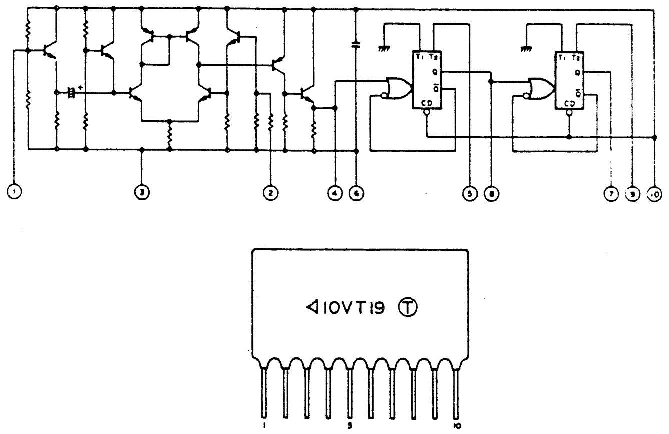

LIMITER
DE MODULATOR

– TA7348P –



– 10VT19 –



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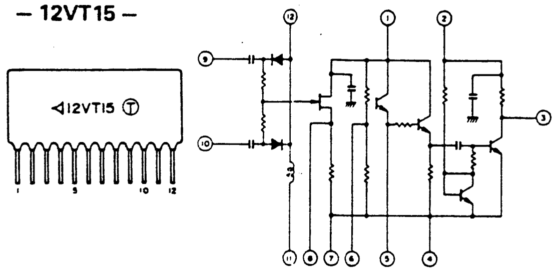

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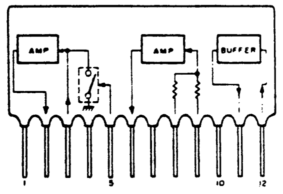
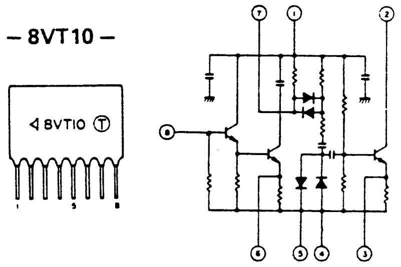

AMP
AMP
BUFFER

– 8VT10 –



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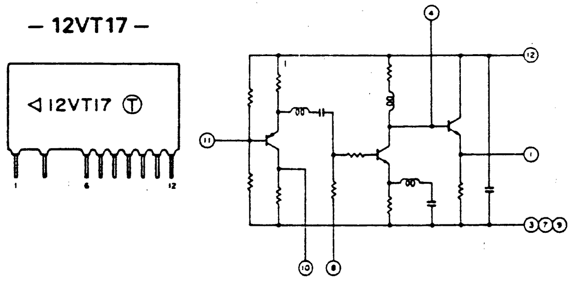

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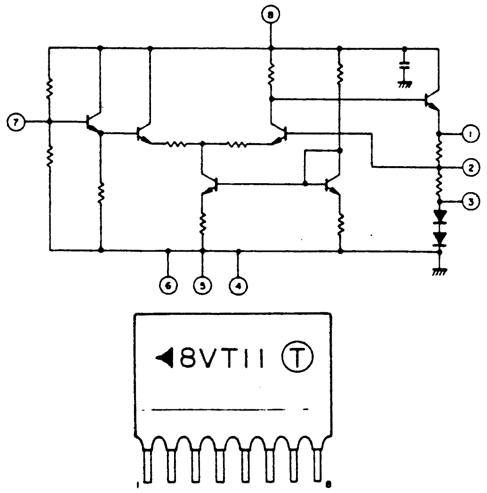

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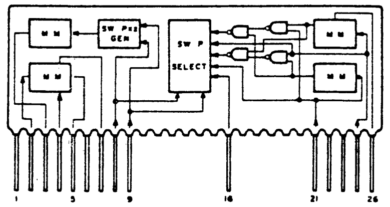
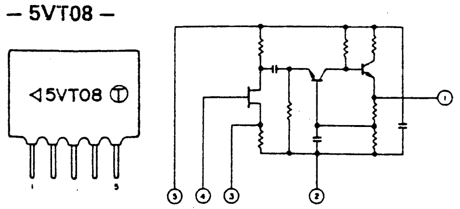
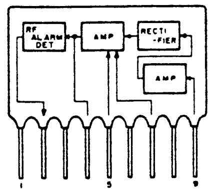

M M
SW. P&E GEN
SW. P SELECT

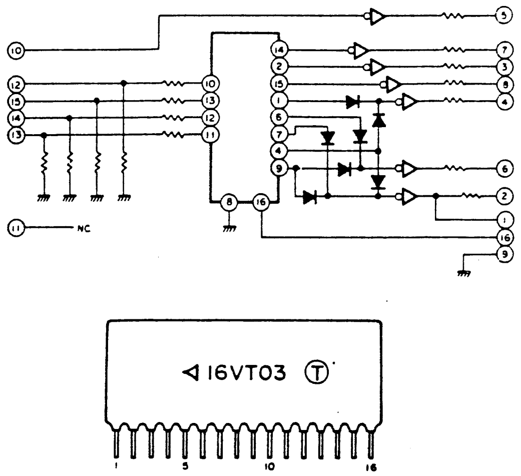
– 5VT08 –



– 9VT05 –


RF ALARM DET
AMP
RECTI-FIER
AMP

– 16VT03 –



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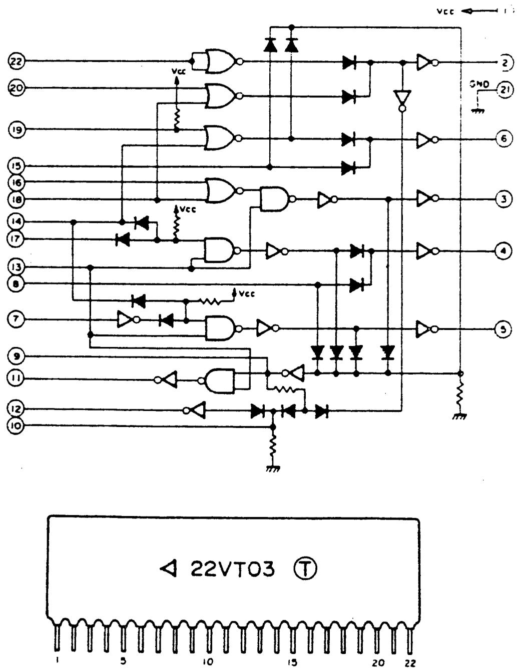
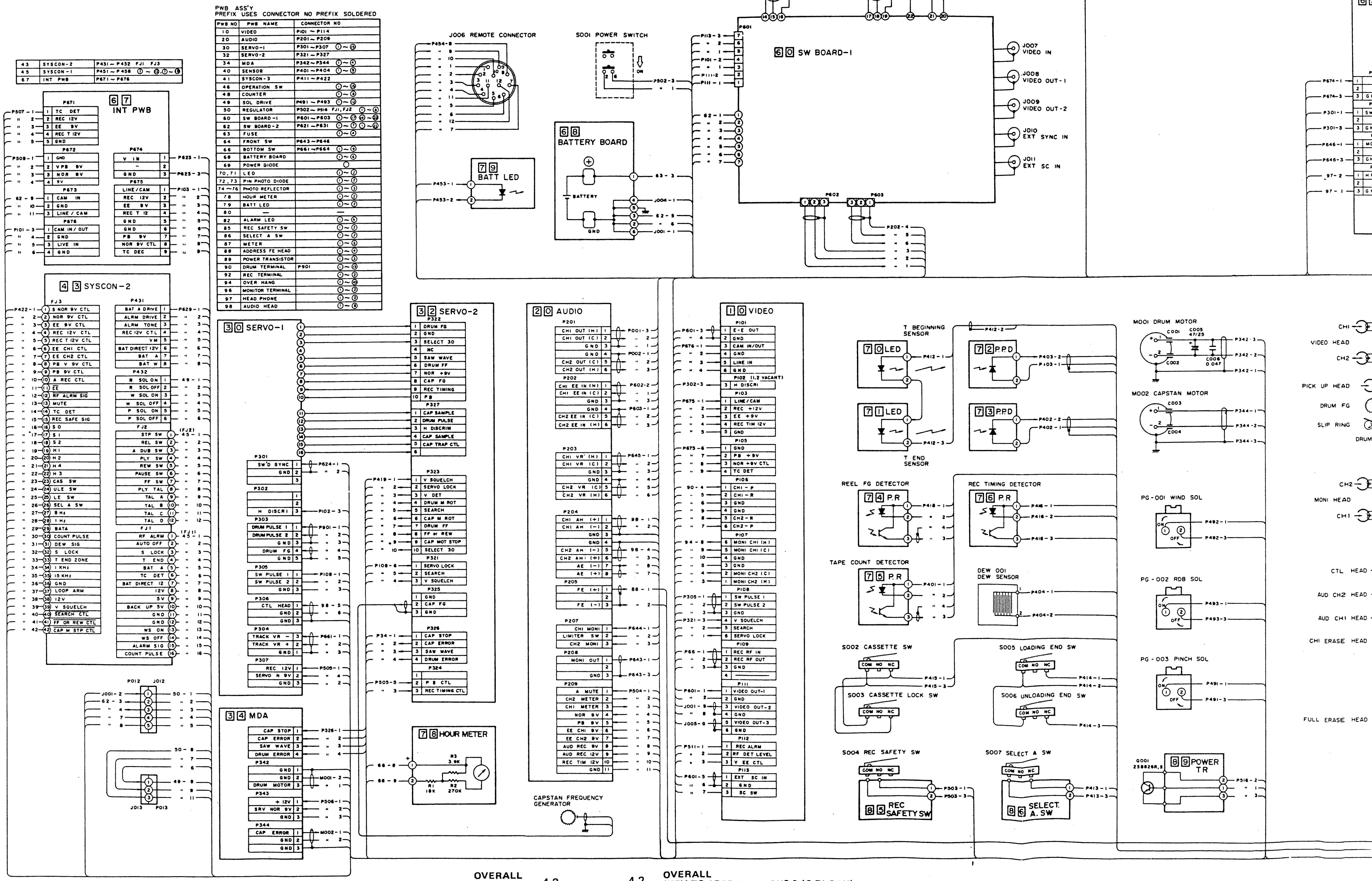

Vcc
GND
◁22VT03 Ⓣ

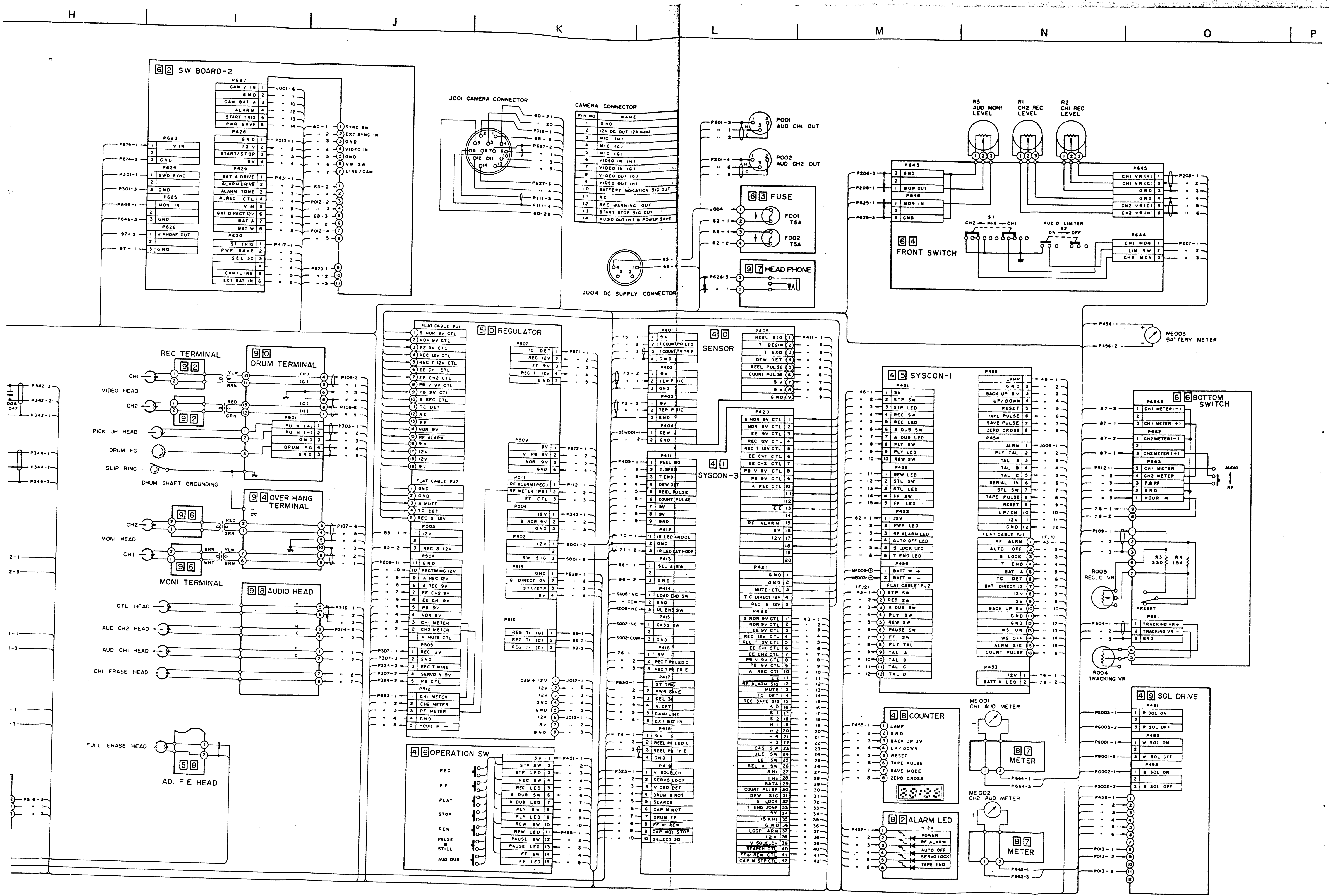
10

4.2 OVERALL WIRING DIAGRAM

PWB ASS'Y
PREFIX USES CONNECTOR NO PREFIX SOLDERED

PWB NO	PWB NAME	CONNECTOR NO
10	VIDEO	P101 ~ P114
20	AUDIO	P201 ~ P209
30	SERVO-1	P301 ~ P307 ①~⑮
32	SERVO-2	P321 ~ P327
34	MDA	P342 ~ P344 ①~④
40	SENSOR	P401 ~ P404 ①~⑨
41	SYSCON-3	P411 ~ P422
46	OPERATION SW	①~⑮
48	COUNTER	①~⑧
49	SOL DRIVE	P491 ~ P493 ①~⑫
50	REGULATOR	P502 ~ P516 FJ1, FJ2 ①~⑧
60	SW BOARD-1	P601 ~ P603 ①~⑰ ⑭~㉒
62	SW BOARD-2	P621 ~ P631 ①~⑦ ①~⑪
63	FUSE	①~④
64	FRONT SW	P643 ~ P646
66	BOTTOM SW	P661 ~ P664 ①~⑨
68	BATTERY BOARD	①~⑥
69	POWER DIODE	○
70, 71	LED	①~②
72, 73	PIN PHOTO DIODE	①~②
74 ~ 76	PHOTO REFLECTOR	①~③
78	HOUR METER	①~②
79	BATT LED	①~②
80	—	—
82	ALARM LED	①~⑥
85	REC SAFETY SW	①~②
86	SELECT A SW	①~②
87	METER	①~②
88	ADDRESS FE HEAD	①~④
89	POWER TRANSISTOR	①~③
90	DRUM TERMINAL	P901 ①~⑬
92	REC TERMINAL	①~②
94	OVER HANG	①~⑩
96	MONITOR TERMINAL	①~②
97	HEAD PHONE	①~②
98	AUDIO HEAD	①~⑧
43	SYSCON-2	P431 ~ P432 FJ1 FJ3
45	SYSCON-1	P451 ~ P458 ①~⑫, ①~⑥
67	INT PWB	P671 ~ P676


67 INT PWB
43 SYSCON-2
30 SERVO-1
34 MDA
32 SERVO-2
78 HOUR METER
20 AUDIO
10 VIDEO
J006 REMOTE CONNECTOR
S001 POWER SWITCH
79 BATT LED
68 BATTERY BOARD
J002 AUDIO CH-1 IN
J003 AUDIO CH-2 IN
60 SW BOARD-1
J007 VIDEO IN
J008 VIDEO OUT-1
J009 VIDEO OUT-2
J010 EXT SYNC IN
J011 EXT SC IN
T BEGINNING SENSOR
70 LED
71 LED
T END SENSOR
72 P.P.D
73 P.P.D
REEL FG DETECTOR
74 P.R
REC TIMING DETECTOR
76 P.R
TAPE COUNT DETECTOR
75 P.R
DEW 001 DEW SENSOR
S002 CASSETTE SW
S003 CASSETTE LOCK SW
S004 REC SAFETY SW
85 REC SAFETY SW
S005 LOADING END SW
S006 UNLOADING END SW
S007 SELECT A SW
86 SELECT. A. SW
M001 DRUM MOTOR
M002 CAPSTAN MOTOR
PG-001 WIND SOL
PG-002 RDB SOL
PG-003 PINCH SOL
Q001 2SB826R,S
89 POWER TR
CAPSTAN FREQUENCY GENERATOR
J012
P012
J013
P013
VIDEO HEAD
PICK UP HEAD
DRUM FG
SLIP RING
MONI HEAD
CTL HEAD
AUD CH2 HEAD
AUD CH1 HEAD
CH1 ERASE HEAD
FULL ERASE HEAD

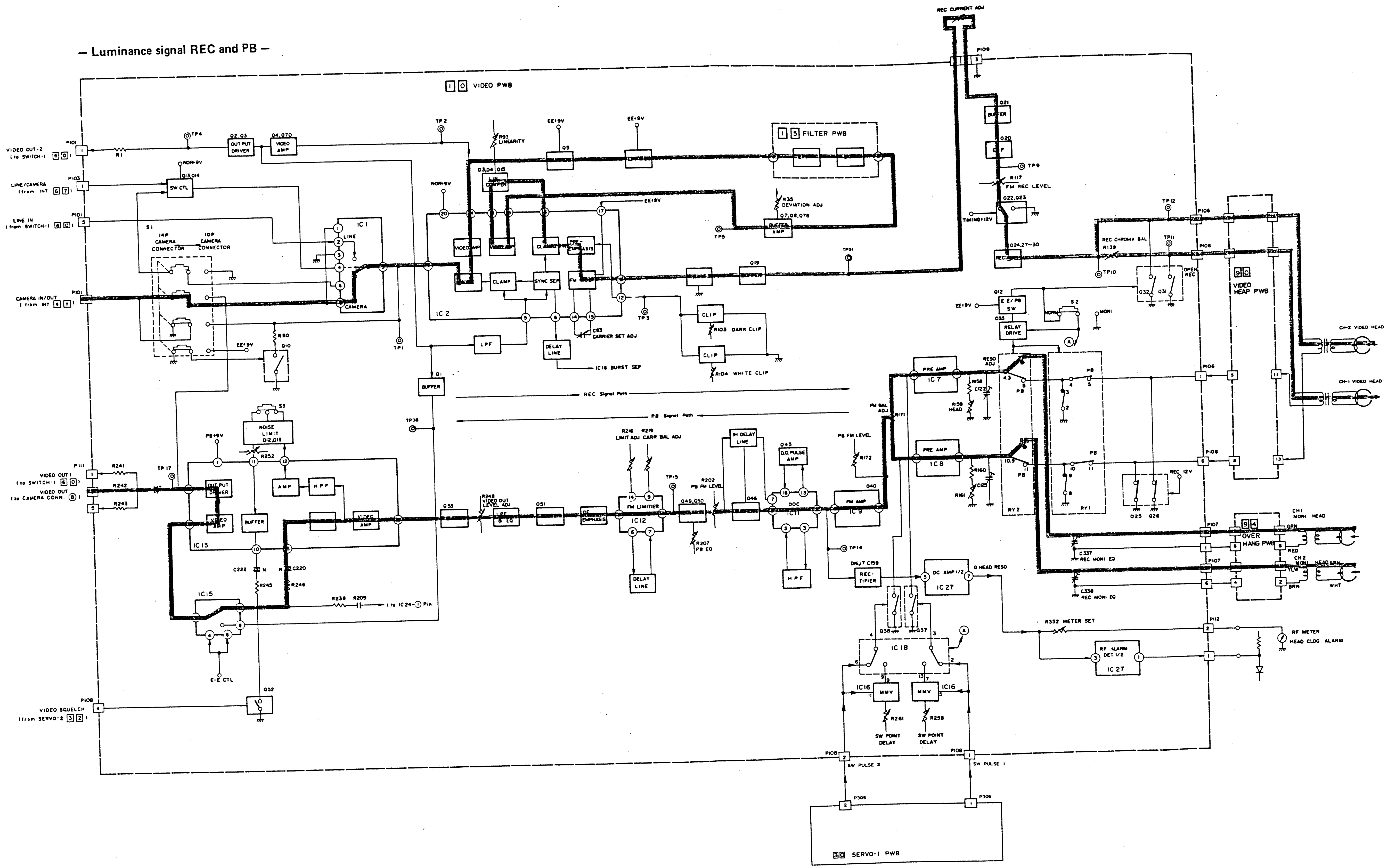

H
I
J
K
L
M
N
O
P
62 SW BOARD-2
J001 CAMERA CONNECTOR
CAMERA CONNECTOR
J004 DC SUPPLY CONNECTOR
P001 AUD CH1 OUT
P002 AUD CH2 OUT
63 FUSE
F001 T5A
F002 T5A
97 HEAD PHONE
R3 AUD MONI LEVEL
R1 CH2 REC LEVEL
R2 CH1 REC LEVEL
64 FRONT SWITCH
S1
AUDIO LIMITER
ME003 BATTERY METER
REC TERMINAL
92
90 DRUM TERMINAL
VIDEO HEAD
PICK UP HEAD
DRUM FG
SLIP RING
DRUM SHAFT GROUNDING
94 OVER HANG TERMINAL
96
MONI HEAD
MONI TERMINAL
98 AUDIO HEAD
CTL HEAD
AUD CH2 HEAD
AUD CH1 HEAD
CH1 ERASE HEAD
FULL ERASE HEAD
88
AD. F E HEAD
50 REGULATOR
46 OPERATION SW
REC
FF
PLAY
STOP
REW
PAUSE & STILL
AUD DUB
40 SENSOR
41 SYSCON-3
45 SYSCON-1
66 BOTTOM SWITCH
R005 REC. C. VR
R004 TRACKING VR
PRESET
48 COUNTER
ME001 CH1 AUD METER
ME002 CH2 AUD METER
87 METER
82 ALARM LED
49 SOL DRIVE

OVERALL
(KEY TO ABBREVIATIONS & IC BLOCK)

OVERALL
(KEY TO ABBREVIATIONS & IC BLOCK)

4.3 VIDEO BLOCK DIAGRAM

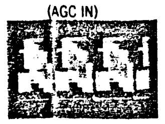
— Luminance signal REC and PB —



A
B
C
D
E
F
G
1
2
3
4
5
6
REC CURRENT ADJ
P109
10 VIDEO PWB
15 FILTER PWB
VIDEO OUT-2 (to SWITCH-1 60)
LINE/CAMERA (from INT 67)
LINE IN (from SWITCH-1 60)
CAMERA IN/OUT (from INT 67)
P101
P103
TP4
R1
Q2,Q3
OUT PUT DRIVER
Q4,Q70
VIDEO AMP
NOR+9V
Q13,Q14
SW CTL
S1
14P CAMERA CONNECTOR
10P CAMERA CONNECTOR
IC1
LINE
CAMERA
EE+9V
R80
Q10
TP2
R93 LINEARITY
D3,D4 Q15
LIN COMPEN
NOR+9V
VIDEO AMP
CLAMP
SYNC SEP
PRE-EMPHASIS
FM MOD
IC2
TP1
LPF
DELAY LINE
IC16 BURST SEP
C83 CARRIER SET ADJ
TP3
Q5
EE+9V
R35 DEVIATION ADJ
Q7,Q8,Q76
BUFFER AMP
TP5
Q19
BUFFER
TP51
CLIP
R103 DARK CLIP
R104 WHITE CLIP
Q1
BUFFER
TP36
REC Signal Path
PB Signal Path
Q21
BUFFER
Q20
E.F
TP9
R117
FM REC LEVEL
Q22,Q23
TIMING 12V
Q24,27~30
REC AMP
TP12
REC CHROMA BAL
R139
TP11
TP10
P106
OPEN REC
Q32
Q31
90 VIDEO HEAD PWB
CH-2 VIDEO HEAD
CH-1 VIDEO HEAD
Q12
E E/PB SW
EE+9V
S2
NORM
MONI
Q35
RELAY DRIVE
R150 ADJ
PRE AMP
IC7
R158
C122
R159 HEAD
PRE AMP
IC8
R160
C123
R161
RY2
RY1
PB
Q25
Q26
REC 12V
FM BAL ADJ
R171
PB FM LEVEL
R172
Q40
FM AMP
IC9
1H DELAY LINE
Q45
D.O. PULSE AMP
DOC
IC11
Q46
HPF
TP14
D16,17 C159
REC-TIFIER
DC AMP 1/2
IC27
Q HEAD RESO
R216 LIMIT ADJ
R219 CARR BAL ADJ
TP15
FM LIMITER
IC12
DELAY LINE
R202 PB FM LEVEL
Q49,Q50
R207 PB EQ
DE EMPHASIS
Q51
LPF & EQ
R248 VIDEO OUT LEVEL ADJ
Q53
P111
VIDEO OUT 1 (to SWITCH-1 60)
VIDEO OUT (to CAMERA CONN 8)
R241
R242
R243
TP17
PB+9V
S3
NOISE LIMIT D12,D13
R252
OUT PUT DRIVER
VIDEO AMP
BUFFER
AMP
HPF
VIDEO AMP
IC13
C222
C220
R245
R246
IC15
R238
R209
(to IC24-1 Pin)
E-E CTL
Q52
P108
VIDEO SQUELCH (from SERVO-2 32)
P107
94 OVER HANG PWB
CH1 MONI HEAD
CH2 MONI HEAD
GRN
RED
YLW
BRN
WHT
C337 REC MONI EQ
C338 REC MONI EQ
R352 METER SET
P112
RF METER
HEAD CLOG ALARM
RF ALARM DET 1/2
IC27
Q38
Q37
IC18
IC16
MMV
R261
R258
SW POINT DELAY
SW PULSE 2
SW PULSE 1
P305
33 SERVO-1 PWB

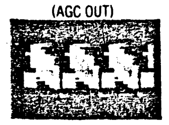
4.4 VIDEO CIRCUIT

TP-1
(AGC IN)



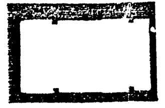
1 Vp-p

TP-2
(AGC OUT)



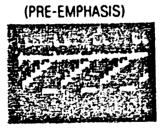
0.8 Vp-p

TP-10
(FM REC OUT)



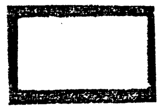
5.4 Vp-p

TP-3
(PRE-EMPHASIS)

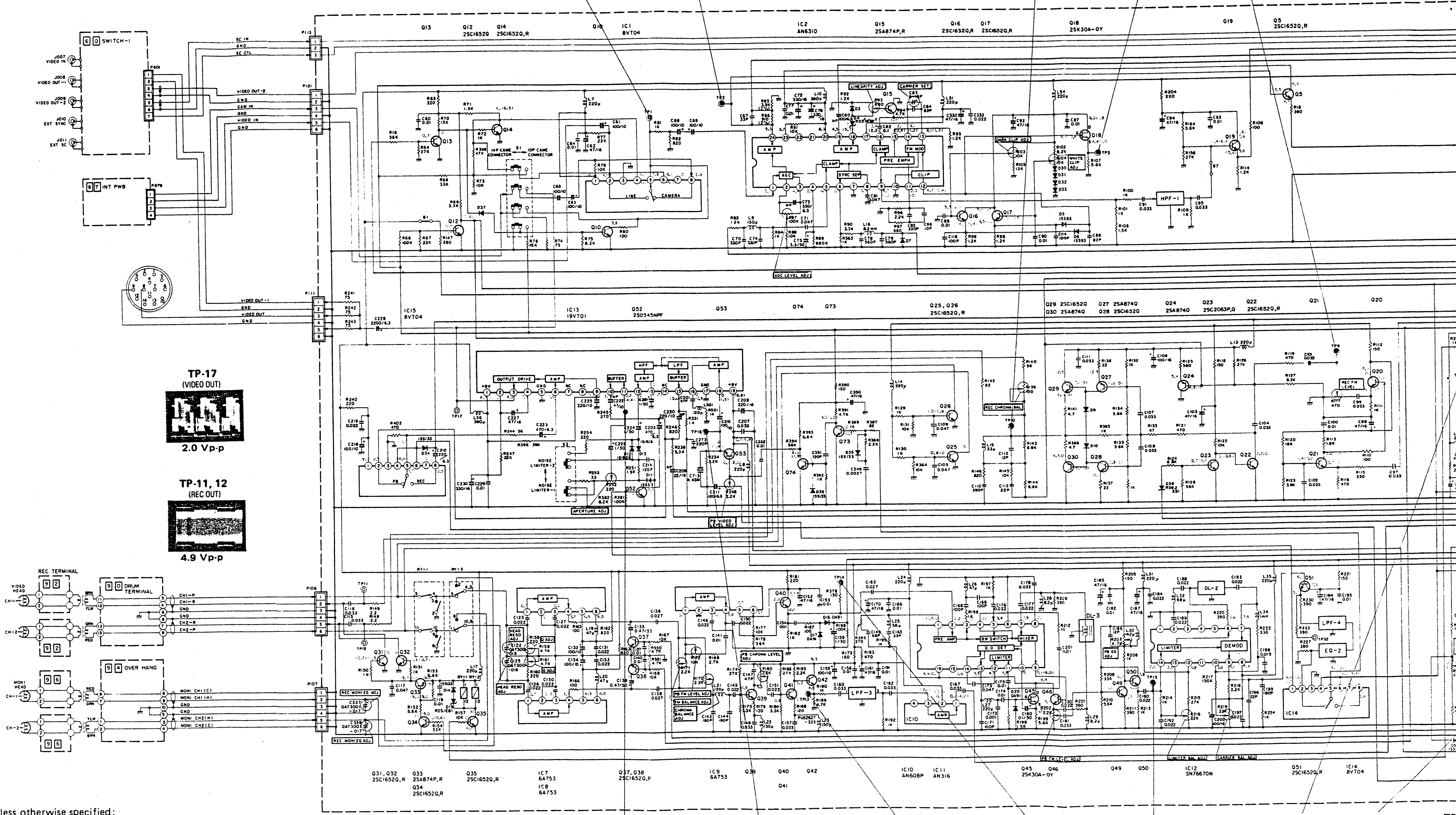


1.2 Vp-p

TP-9
(REC Y OUT)

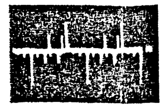


1 Vp-p



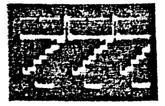
A
B
C
D
E
F
G
H
1
2
3
4
5
6
SWITCH-1
J007 VIDEO IN
J008 VIDEO OUT-1
J009 VIDEO OUT-2
J010 EXT SYNC
J011 EXT SC
P801
INT PWB
P878
P113
P101
P111
SC IN
GND
SC CTL
VIDEO OUT-2
CAM IN
VIDEO IN
VIDEO OUT-1
VIDEO OUT
Q13
Q12 2SC1652Q
Q14 2SC1652Q,R
Q10
IC1 8VT04
IC2 AN6310
Q15 2SA874P,R
Q16 2SC1652Q,R
Q17 2SC1652Q,R
Q18 2SK30A-OY
Q19
Q5 2SC1652Q,R
14P CAMERA CONNECTOR
10P CAMERA CONNECTOR
S1
LINE
CAMERA
AGC
AMP
CLAMP
SYNC SEP
PRE EMPH
FM MOD
CLIP
LINEARITY ADJ
CARRIER SET
DARK CLIP ADJ
WHITE CLIP ADJ
AGC LEVEL ADJ
HPF-1
TP1
TP2
TP3
TP5
TP9
TP10
IC15 8VT04
IC13 19VT01
Q52 2SD545NPF
Q53
Q74
Q73
Q25, Q26 2SC1652Q,R
Q29 2SC1652Q
Q30 2SA874Q
Q27 2SA874Q
Q28 2SC1652Q
Q24 2SA874Q
Q23 2SC2063P,Q
Q22 2SC1652Q,R
Q21
Q20
OUTPUT DRIVE
BUFFER
HPF
LPF
NOISE LIMITER
APERTURE ADJ
PB VIDEO LEVEL ADJ
REC CHROMA BAL
REC FM LEVEL
PB
REC
TP17
TP16
TP-17
(VIDEO OUT)
2.0 Vp-p
TP-11, 12
(REC OUT)
4.9 Vp-p
REC TERMINAL
VIDEO HEAD
CH-1
CH-2
DRUM TERMINAL
OVER HANG
MONI HEAD
CH1-P
CH1-R
GND
CH2-R
CH2-P
MONI CH1(C)
MONI CH1(H)
MONI CH2(H)
MONI CH2(C)
P106
P107
TP11
TP12
RY-1
RY-2
REC MONI EQ ADJ
HEAD RESO ADJ
PB FM LEVEL ADJ
FM BALANCE ADJ
CHROMA BALANCE ADJ
PB CHROMA LEVEL ADJ
LPF-3
PRE AMP
BW SWITCH
MIXER
D.O DET
LIMITER
DL-3
DL-2
DEMOD
LPF-4
EQ-2
IC10
IC14
AMR
PB FM LEVEL ADJ
LIMITER BAL ADJ
CARRIER BAL ADJ
Q31, Q32 2SC1652Q,R
Q33 2SA874P,R
Q34 2SC1652Q,R
Q35 2SC1652Q,R
IC7 6A753
IC8 6A753
Q37, Q38 2SC1652Q,P
IC9 6A753
Q39
Q40
Q41
Q42
IC10 AN608P
IC11 AN316
Q45 2SK30A-OY
Q46
Q49
Q50
IC12 SN76670N
Q51 2SC1652Q,R
IC14 8VT04

IC13-11
(APERTURE)



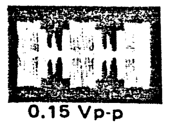
0.1 Vp-p

TP-16
(PB Y OUT)



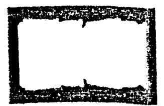
0.75 Vp-p

TP-13
(PB COL IN)



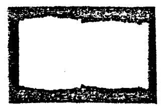
0.15 Vp-p

TP-14
(PB FM IN)



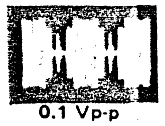
0.4 Vp-p

TP-15
(DEMOD IN)



0.9 Vp-p

TP-23
(ACC IN)



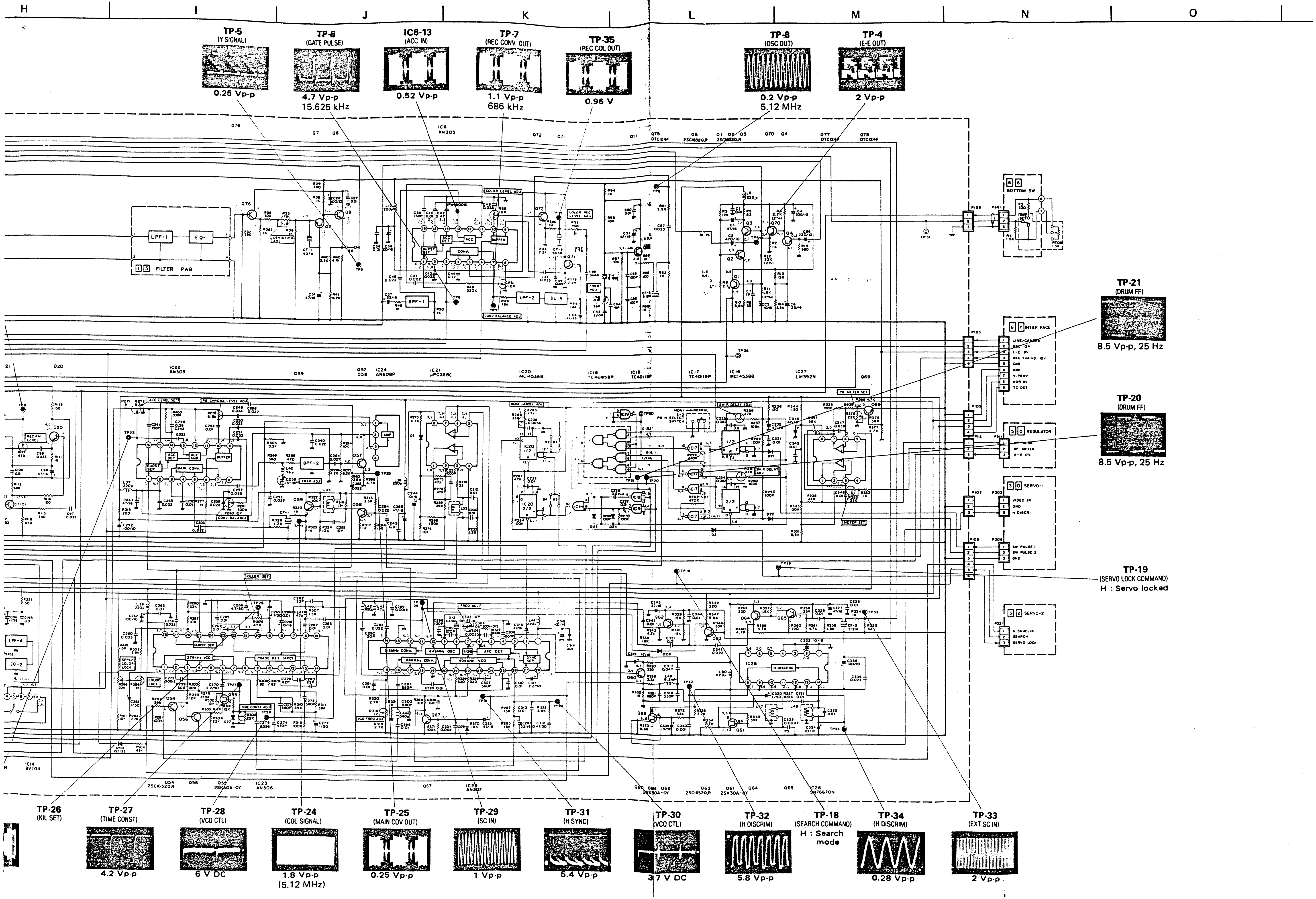
0.1 Vp-p

TP-26
(KIL SET)

TP
(TIME

4.2

NOTES: Unless otherwise specified;
All transistors are 2SC2647C, diodes are 1SS133.
All capacitors are in microfards, inductors are in henries, resistors are in ohms (1/6 W).
( ) represents the DC voltage at playback mode.
Shaded ( ) parts are critical for safety.
Replace only with specified part numbers.

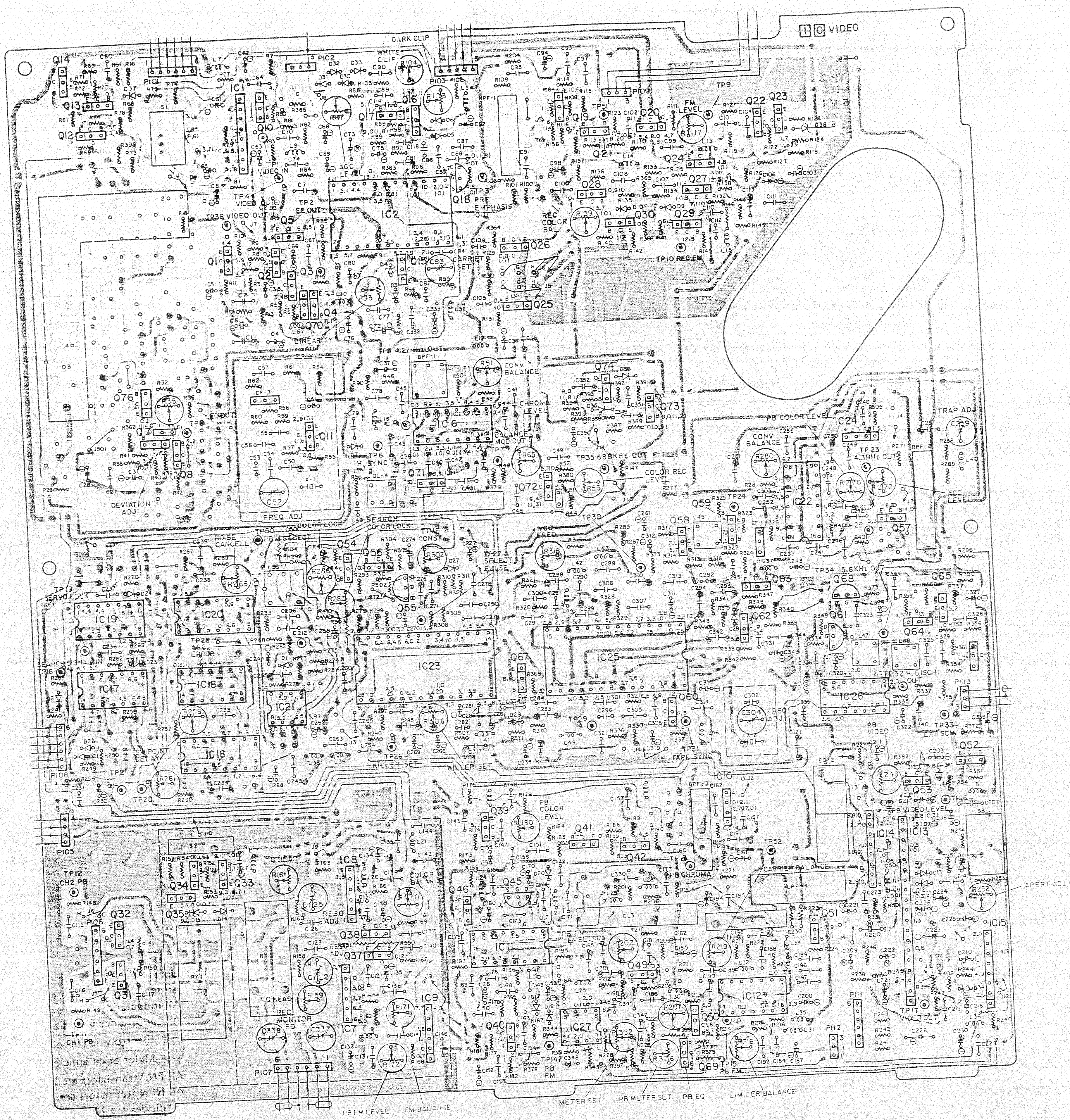

H
I
J
K
L
M
N
O
TP-5
(Y SIGNAL)
0.25 Vp-p
TP-6
(GATE PULSE)
4.7 Vp-p
15.625 kHz
IC6-13
(ACC IN)
0.52 Vp-p
TP-7
(REC CONV. OUT)
1.1 Vp-p
686 kHz
TP-35
(REC COL OUT)
0.96 V
TP-8
(OSC OUT)
0.2 Vp-p
5.12 MHz
TP-4
(E-E OUT)
2 Vp-p
TP-21
(DRUM FF)
8.5 Vp-p, 25 Hz
TP-20
(DRUM FF)
8.5 Vp-p, 25 Hz
TP-19
(SERVO LOCK COMMAND)
H : Servo locked
1 5 FILTER PWB
LPF-I
EQ-I
IC6
AN305
BPF-I
LPF-2
DL-4
6 6 BOTTOM SW
6 7 INTER FACE
LINE/CAMERA
REC 12V
E-E 9V
REC TIMING 12V
GND
GND
V. PB 9V
HOR 9V
TC DET
5 0 REGULATOR
RF METER
E-E CTL
3 0 SERVO-I
VIDEO IN
GND
H DISCRI
SW PULSE 1
SW PULSE 2
GND
3 2 SERVO-2
V SQUELCH
SEARCH
SERVO LOCK
IC22
AN305
IC24
AN608P
IC21
μPC358C
IC20
MC14538B
IC18
TC4085BP
IC19
TC4011BP
IC17
TC4011BP
IC16
MC14538B
IC27
LM392N
IC14
BVT04
IC23
AN306
IC25
AN307
IC26
SN76670N
ACC LEVEL SET
PB CHROMA LEVEL ADJ
BURST SEP
MAIN CONV
ACC DET
ACC AMP
BUFFER
CONV. BALANCE
BPF-2
TRAP ADJ
NOISE CANCEL ADJ
PB SELECT SWITCH
SW P. DELAY ADJ
PB METER SET
METER SET
KILLER SET
279kHz VCO
PHASE DET. (APC)
COLOR LOCK
TIME CONST ADJ
VCO FREQ ADJ
FREQ ADJ
5.12MHz CONV.
4.43MHz OSC
AFC DET.
686kHz CONV.
406kHz VCO
SYNC SEP
H.DISCRIM
LPF-4
EQ-2
TP-26
(KIL SET)
4.2 Vp-p
TP-27
(TIME CONST)
6 V DC
TP-28
(VCO CTL)
1.8 Vp-p
(5.12 MHz)
TP-24
(COL SIGNAL)
0.25 Vp-p
TP-25
(MAIN COV OUT)
1 Vp-p
TP-29
(SC IN)
5.4 Vp-p
TP-31
(H SYNC)
3.7 V DC
TP-30
(VCO CTL)
5.8 Vp-p
TP-32
(H DISCRIM)
TP-18
(SEARCH COMMAND)
H : Search mode
TP-34
(H DISCRIM)
0.28 Vp-p
TP-33
(EXT SC IN)
2 Vp-p

VIDEO CIRCUIT
(VIDEO BLOCK)

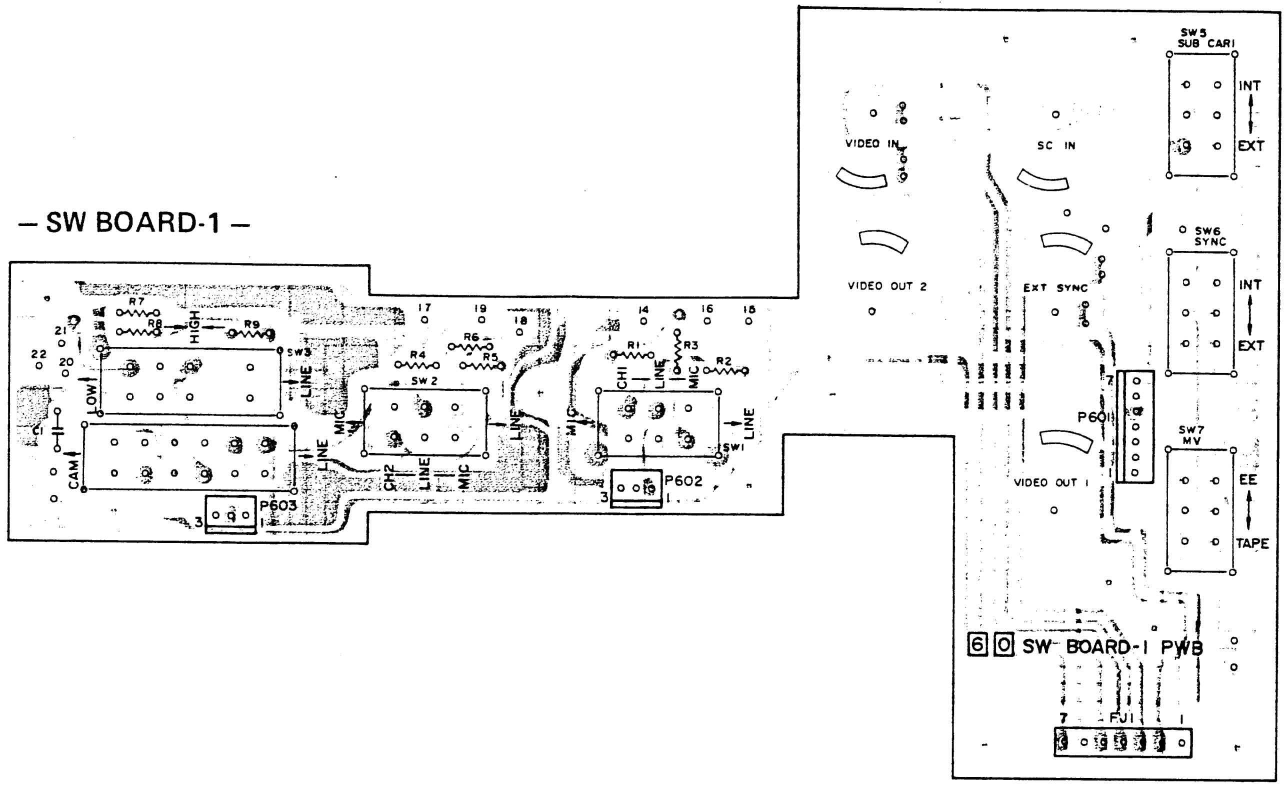
VIDEO CIRCUIT
(VIDEO BLOCK)

4.5 VIDEO AND PERIPHERAL CIRCUIT BOARDS

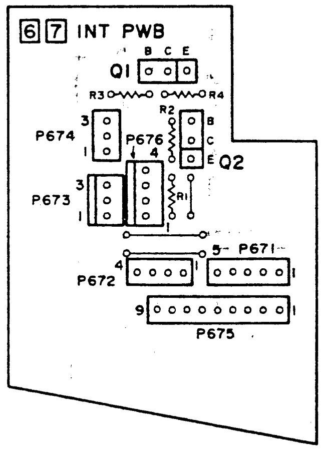
– VIDEO –


VIDEO
DARK CLIP
WHITE CLIP
FM LEVEL
AGC LEVEL
PRE EMPHASIS
REC COLOR BAL
TP10 REC FM
CARRIER SET
LINEARITY ADJ
TP8 4.27MHz OUT
CONV BALANCE
CHROMA LEVEL
DEVIATION ADJ
FREQ ADJ
COLOR LOCK
SEARCH COLOR LOCK
TIME CONST
TP35 629KHz OUT
COLOR REC LEVEL
PB COLOR LEVEL
TRAP ADJ
TP23 4.3MHz OUT
ACC LEVEL
TP34 15.6KHz OUT
H. DISCRI
PB VIDEO
EXT SCH
KILLER SET
TAPE SYNC
CARRIER BALANCE
VIDEO LEVEL
APERT ADJ
HEAD MONITOR EQ
SERVO LOCK
CH2 PB
CH1 PB
PB FM LEVEL
FM BALANCE
METER SET
PB METER SET
PB EQ
LIMITER BALANCE

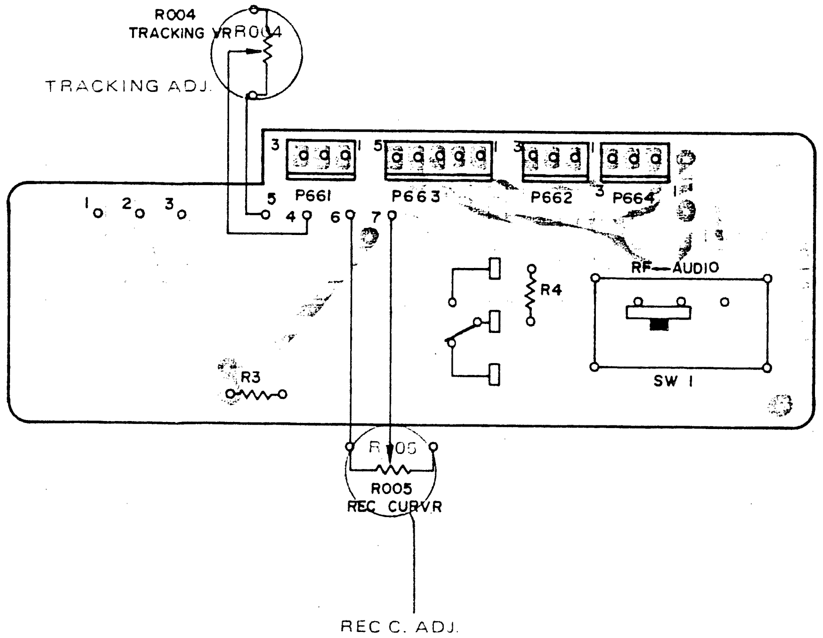
– SW BOARD-1 –


R7
R8
HIGH
R9
SW3
LOW
LINE
CAM
21
22
20
17
19
18
14
16
15
R4
R6
R5
SW 2
MIC
CH2
LINE
MIC
R1
R3
R2
CH1
LINE
MIC
LINE
SW1
P602
P603
VIDEO IN
SC IN
VIDEO OUT 2
EXT SYNC
VIDEO OUT 1
P601
SW5
SUB CARI
INT
EXT
SW6
SYNC
INT
EXT
SW7
MV
EE
TAPE
60 SW BOARD-1 PWB
7
FJ1
1

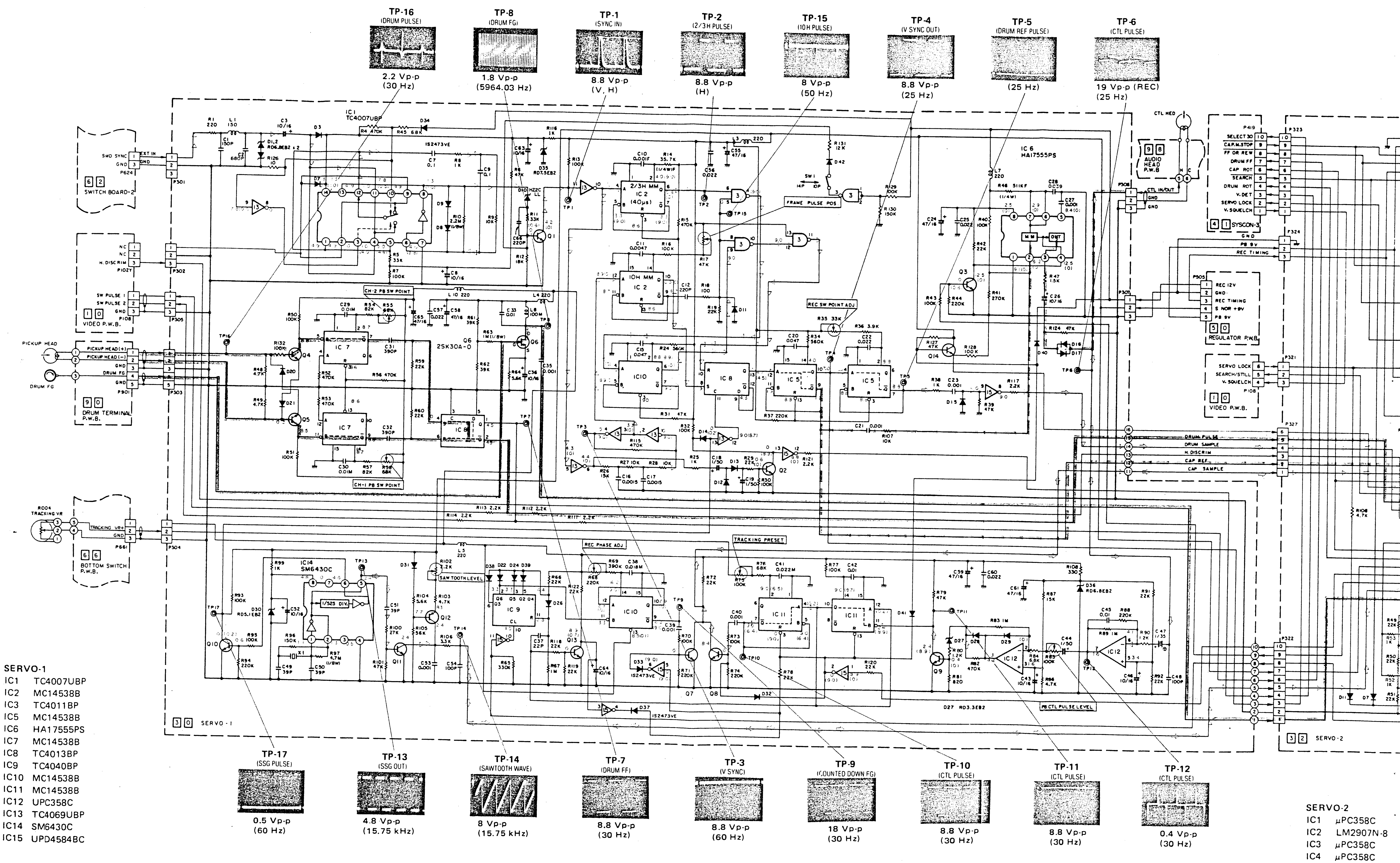
– INT PWB –


67 INT PWB
Q1
B C E
R3
R4
R2
P674
P676
Q2
B
C
E
P673
R1
P671
P672
P675
9
1
4
5
3

– BOTTOM SWITCH –


R004
TRACKING VR
R004
TRACKING ADJ.
P661
P663
P662
P664
1 2 3
5
4
6
7
RF—AUDIO
R4
SW 1
R3
R005
R005
REC CURVR
REC C. ADJ.

4.6 SERVO CIRCUIT

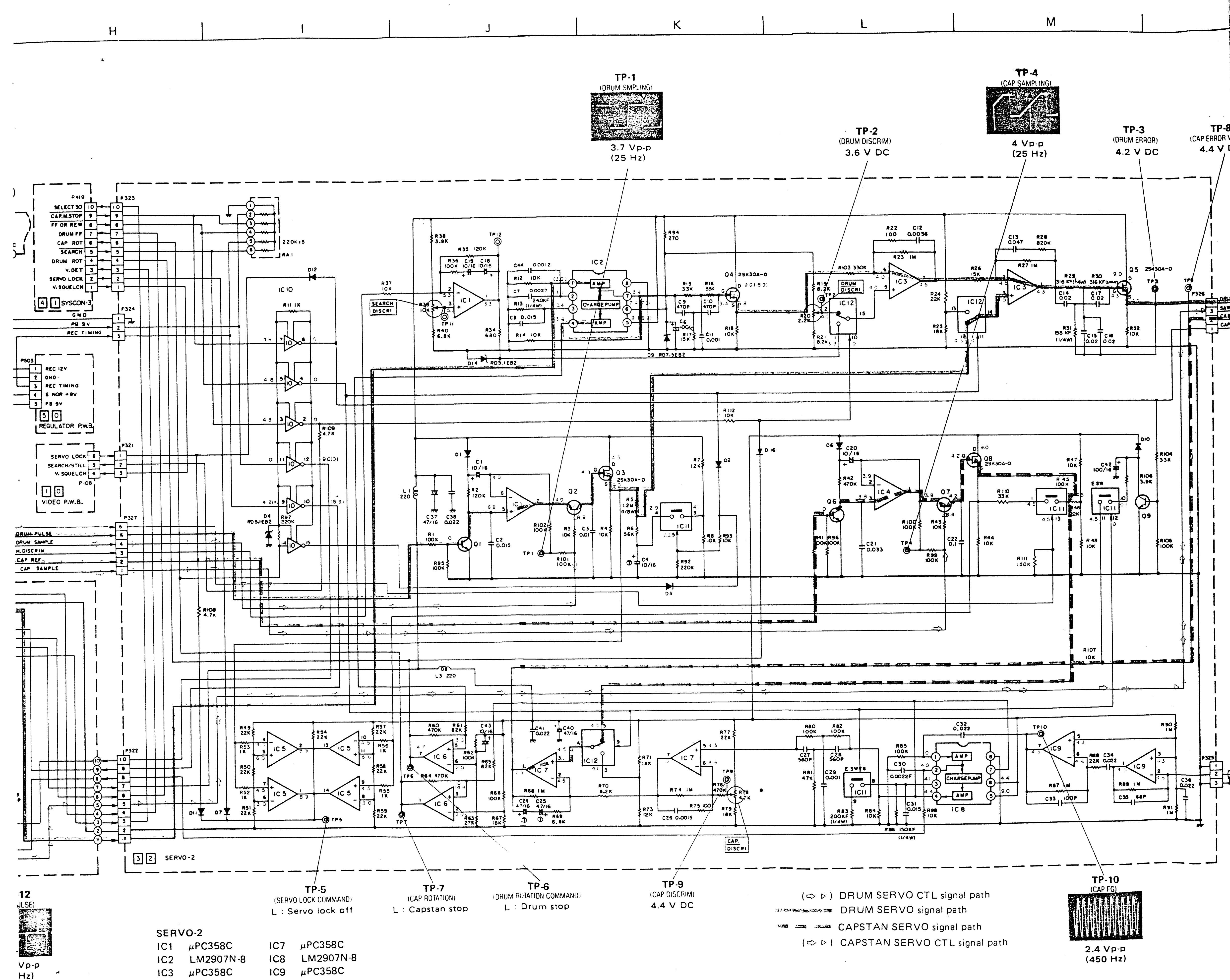

A
B
C
D
E
F
G
H
1
2
3
4
5
6
TP-16
(DRUM PULSE)
2.2 Vp-p
(30 Hz)
TP-8
(DRUM FG)
1.8 Vp-p
(5964.03 Hz)
TP-1
(SYNC IN)
8.8 Vp-p
(V, H)
TP-2
(2/3H PULSE)
8.8 Vp-p
(H)
TP-15
(10H PULSE)
8 Vp-p
(50 Hz)
TP-4
(V SYNC OUT)
8.8 Vp-p
(25 Hz)
TP-5
(DRUM REF PULSE)
(25 Hz)
TP-6
(CTL PULSE)
19 Vp-p (REC)
(25 Hz)
6 2 SWITCH BOARD-2
1 0 VIDEO P.W.B.
9 0 DRUM TERMINAL P.W.B.
6 6 BOTTOM SWITCH P.W.B.
PICKUP HEAD
DRUM FG
R004 TRACKING VR
IC1 TC4007UBP
IC6 HA17555PS
IC14 SM6430C
1/525 DIV.
CH-2 PB SW POINT
CH-1 PB SW POINT
FRAME PULSE POS
REC SW POINT ADJ
REC PHASE ADJ
TRACKING PRESET
SAW TOOTH LEVEL
PB CTL PULSE LEVEL
CTL HED
9 8 AUDIO HEAD P.W.B
4 1 SYSCON-3
5 0 REGULATOR P.W.B.
1 0 VIDEO P.W.B.
3 0 SERVO-1
3 2 SERVO-2
DRUM PULSE
DRUM SAMPLE
H.DISCRIM
CAP REF
CAP SAMPLE
TP-17
(SSG PULSE)
0.5 Vp-p
(60 Hz)
TP-13
(SSG OUT)
4.8 Vp-p
(15.75 kHz)
TP-14
(SAWTOOTH WAVE)
8 Vp-p
(15.75 kHz)
TP-7
(DRUM FF)
8.8 Vp-p
(30 Hz)
TP-3
(V SYNC)
8.8 Vp-p
(60 Hz)
TP-9
(COUNTED DOWN FG)
18 Vp-p
(30 Hz)
TP-10
(CTL PULSE)
8.8 Vp-p
(30 Hz)
TP-11
(CTL PULSE)
8.8 Vp-p
(30 Hz)
TP-12
(CTL PULSE)
0.4 Vp-p
(30 Hz)

SERVO-1

IC1	TC4007UBP
IC2	MC14538B
IC3	TC4011BP
IC5	MC14538B
IC6	HA17555PS
IC7	MC14538B
IC8	TC4013BP
IC9	TC4040BP
IC10	MC14538B
IC11	MC14538B
IC12	UPC358C
IC13	TC4069UBP
IC14	SM6430C
IC15	UPD4584BC

SERVO-2

IC1	μPC358C
IC2	LM2907N-8
IC3	μPC358C
IC4	μPC358C
IC5	NJM2901N
IC6	NJM2903D


H
I
J
K
L
M
TP-1
(DRUM SMPLING)
3.7 Vp-p
(25 Hz)
TP-2
(DRUM DISCRIM)
3.6 V DC
TP-4
(CAP SAMPLING)
4 Vp-p
(25 Hz)
TP-3
(DRUM ERROR)
4.2 V DC
TP-8
(CAP ERROR VOLT)
4.4 V DC
P419
SELECT 30
CAP.M.STOP
FF OR REW
DRUM FF
CAP ROT
SEARCH
DRUM ROT
V. DET
SERVO LOCK
V. SQUELCH
4 1 SYSCON-3
P323
P324
GND
PB 9V
REC TIMING
P505
REC 12V
GND
REC TIMING
S. NOR +9V
PB 9V
5 0
REGULATOR P.W.B.
P321
SERVO LOCK
SEARCH/STILL
V. SQUELCH
P108
1 0
VIDEO P.W.B.
P327
DRUM PULSE
DRUM SAMPLE
H. DISCRIM
CAP REF.
CAP SAMPLE
P322
RA1
220K×5
IC10
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC11
IC12
SEARCH DISCRI
DRUM DISCRI
AMP
CHARGE PUMP
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
2SK30A-O
P326
DRUM ERROR
SAW WAVE
CAP ERROR
CAP STOP
P325
CAPSTAN FREQUENCY GENERATOR
CAP DISCRI
E SW
3 2 SERVO-2
TP-5
(SERVO LOCK COMMAND)
L : Servo lock off
TP-7
(CAP ROTATION)
L : Capstan stop
TP-6
(DRUM ROTATION COMMAND)
L : Drum stop
TP-9
(CAP DISCRIM)
4.4 V DC
TP-10
(CAP FG)
2.4 Vp-p
(450 Hz)
12
(LSE)
Vp-p
Hz)

SERVO-2

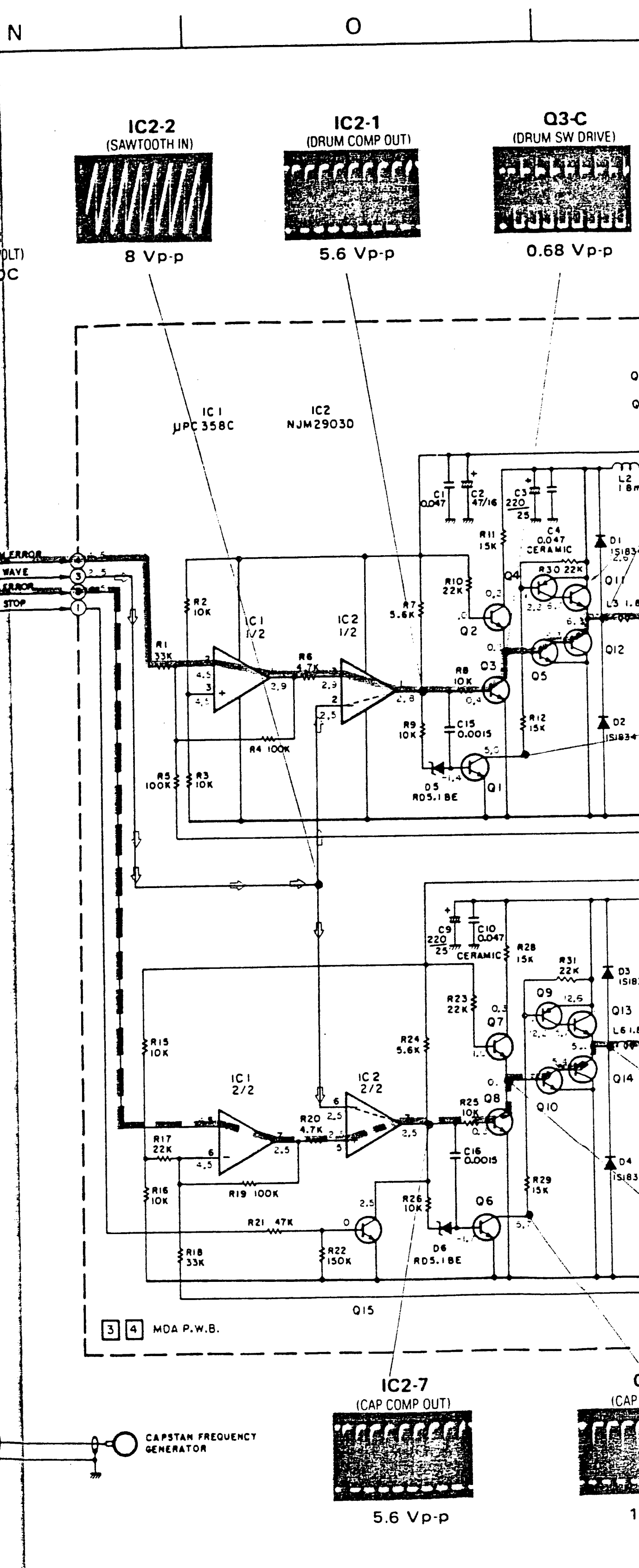
IC1	µPC358C	IC7	µPC358C
IC2	LM2907N-8	IC8	LM2907N-8
IC3	µPC358C	IC9	µPC358C
IC4	µPC358C	IC10	TC5020BP
IC5	NJM2901N	IC11	TC4066BP
IC6	NJM2903D	IC12	TC4053BP

(⇨ ▷) DRUM SERVO CTL signal path

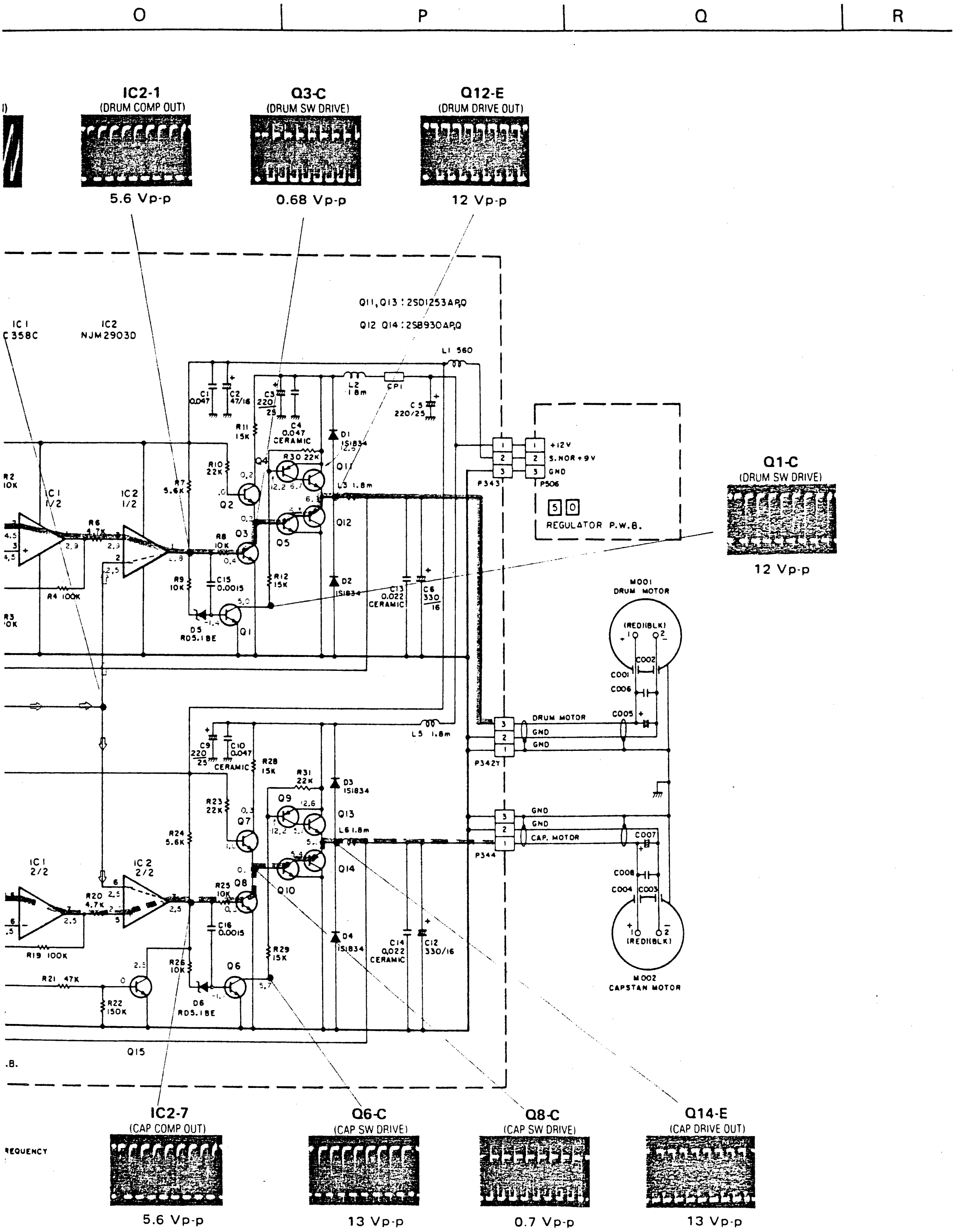
DRUM SERVO signal path

CAPSTAN SERVO signal path

(⇨ ▷) CAPSTAN SERVO CTL signal path


N
O
IC2-2
(SAWTOOTH IN)
8 Vp-p
IC2-1
(DRUM COMP OUT)
5.6 Vp-p
Q3-C
(DRUM SW DRIVE)
0.68 Vp-p
IC1
µPC358C
IC2
NJM2903D
IC1 1/2
IC2 1/2
IC1 2/2
IC2 2/2
Q1
Q2
Q3
Q5
Q6
Q7
Q8
Q10
Q11
Q12
Q13
Q14
Q15
3 4 MDA P.W.B.
IC2-7
(CAP COMP OUT)
5.6 Vp-p

NOTES : Unless specified,
All registance values ar
All inductance values a
All capacitance values
⊣⊢± Electrolytic capac
⊣⊢ Mylar or ceramic
All PNP transistors are
All NPN transistors are
All diodes are 1SS133
(   ) represents the D


O
P
Q
R
IC2-1
(DRUM COMP OUT)
5.6 Vp-p
Q3-C
(DRUM SW DRIVE)
0.68 Vp-p
Q12-E
(DRUM DRIVE OUT)
12 Vp-p
Q11,Q13 : 2SD1253AP,Q
Q12 Q14 : 2SB930AP,Q
IC1
C358C
IC2
NJM2903D
IC1 1/2
IC2 1/2
R2 10K
R3 10K
R4 100K
R6 4.7K
R7 5.6K
R8 10K
R9 10K
R10 22K
R11 15K
R12 15K
R30 22K
C1 0.047
C2 47/16
C3 220/25
C4 0.047 CERAMIC
C5 220/25
C6 330/16
C13 0.022 CERAMIC
C15 0.0015
L1 560
L2 1.8m
L3 1.8m
CP1
D1 1S1834
D2 1S1834
D5 RD5.1BE
Q1
Q2
Q3
Q4
Q5
Q11
Q12
+12V
S.NOR+9V
GND
P343
P506
50
REGULATOR P.W.B.
Q1-C
(DRUM SW DRIVE)
12 Vp-p
M001
DRUM MOTOR
(RED)(BLK)
C001
C002
C005
C006
DRUM MOTOR
GND
GND
P342T
L5 1.8m
C9 220/25
C10 0.047 CERAMIC
R28 15K
R31 22K
D3 1S1834
R23 22K
R24 5.6K
Q9
Q7
Q13
L6 1.8m
Q14
Q8
Q10
Q6
IC1 2/2
IC2 2/2
R19 100K
R20 4.7K
R21 47K
R22 150K
R25 10K
R26 10K
R29 15K
C16 0.0015
D4 1S1834
D6 RD5.1BE
C14 0.022 CERAMIC
C12 330/16
Q15
GND
GND
CAP. MOTOR
P344
C007
C008
C004
C003
(RED)(BLK)
M002
CAPSTAN MOTOR
REQUENCY
.B.
IC2-7
(CAP COMP OUT)
5.6 Vp-p
Q6-C
(CAP SW DRIVE)
13 Vp-p
Q8-C
(CAP SW DRIVE)
0.7 Vp-p
Q14-E
(CAP DRIVE OUT)
13 Vp-p

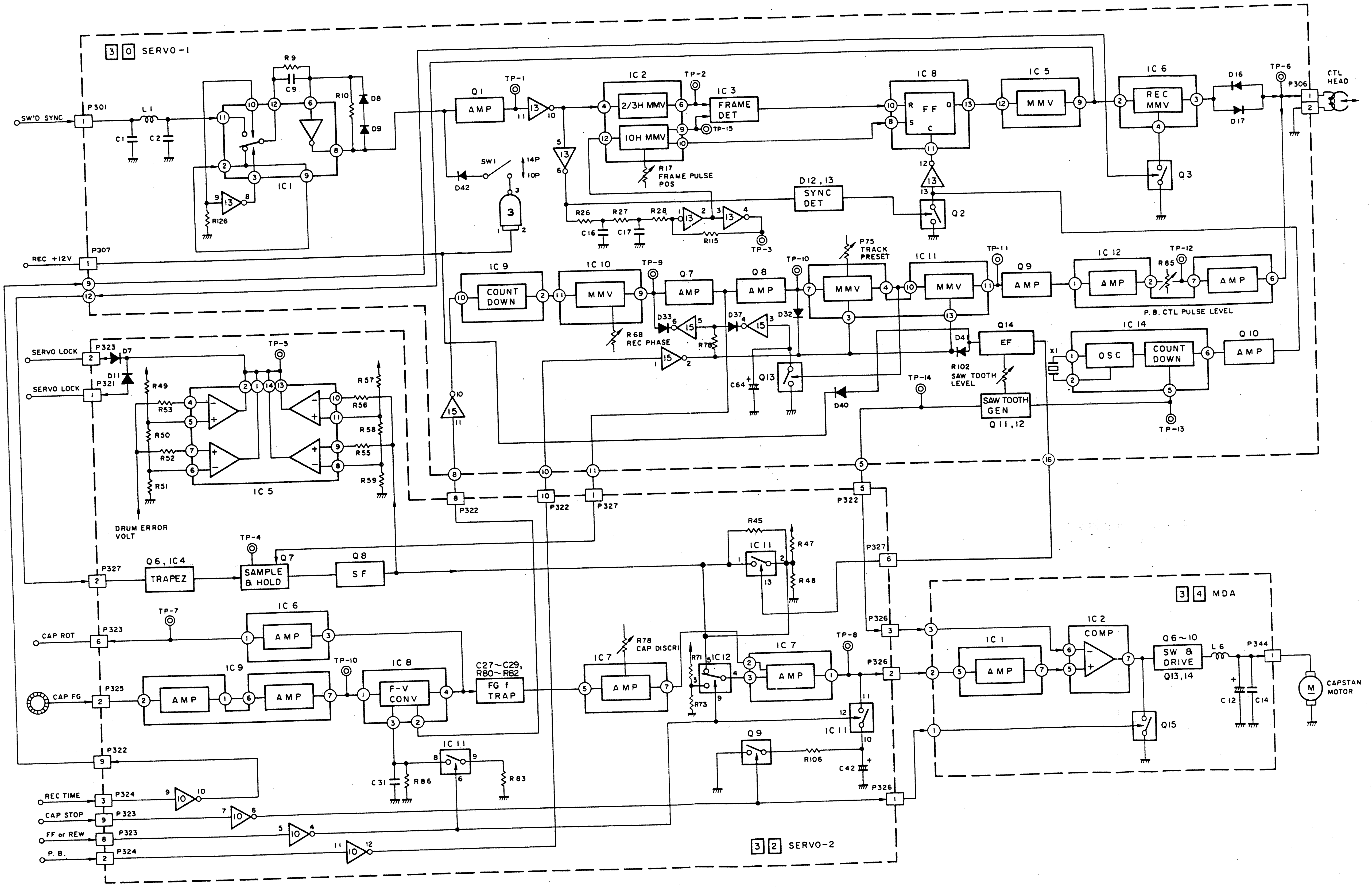
NOTES : Unless specified,
All registance values are in ohms 1/6 W.
All inductance values are in μH.
All capacitance values are in μF.
—╫⁺Electrolytic capacitor
—|⊢Mylar or ceramic capacitor
All PNP transistors are 2SB641Q,R.
All NPN transistors are 2SD636Q,R.
All diodes are 1SS133
(   ) represents the DC voltage at playback mode.

NOTE: Shaded (   ) parts are critical for safety.
Replace only with specified part numbers.

'O CIRCUIT
:O BOARD)

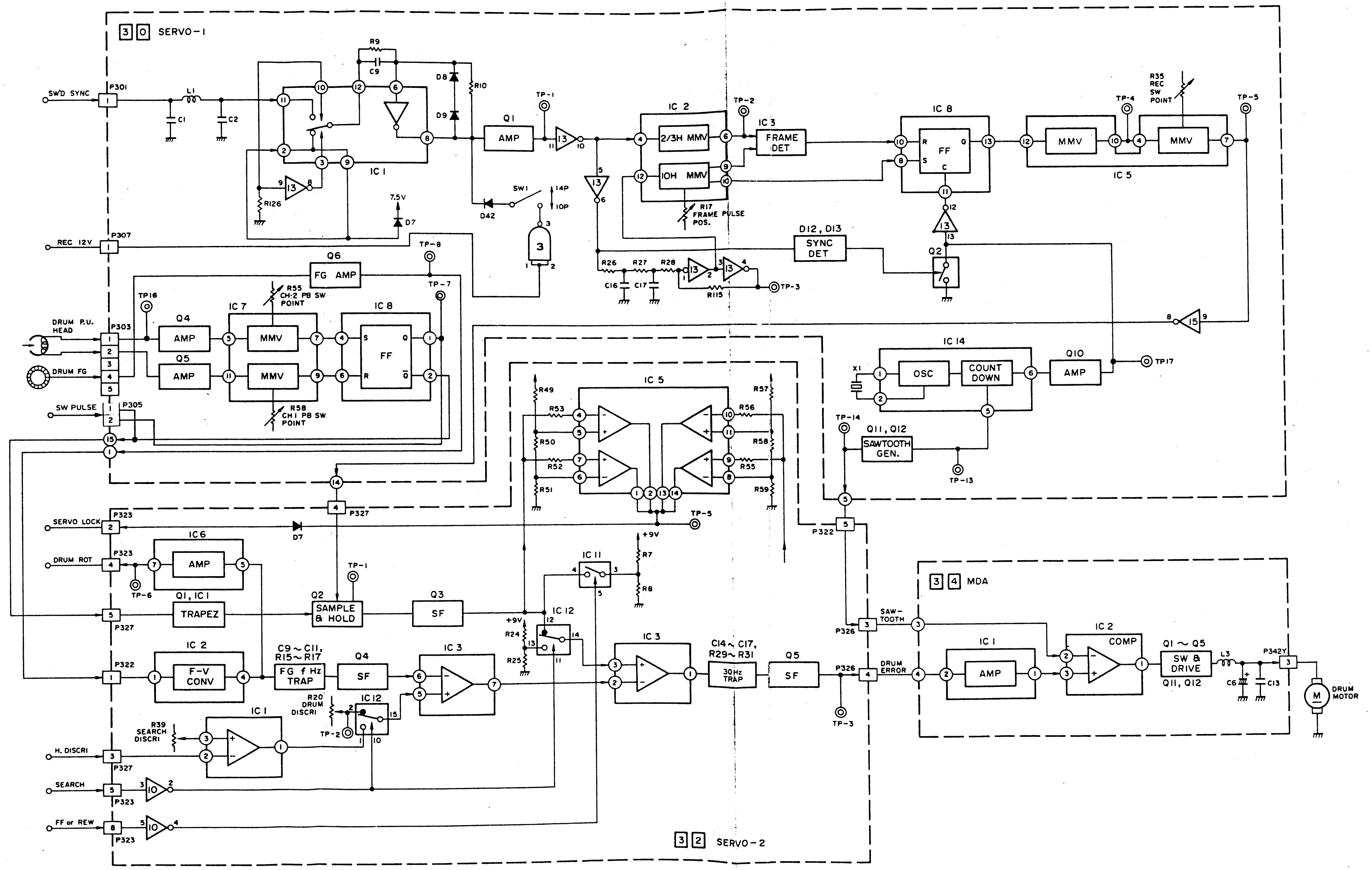
4.7 SERVO BLOCK DIAGRAM

4.7.1 Capstan Servo Block


3 0 SERVO-1
SW'D SYNC
P301
L1
C1
C2
R9
C9
R10
D8
D9
IC1
R126
REC +12V
P307
Q1
AMP
TP-1
IC2
2/3H MMV
10H MMV
TP-2
IC3
FRAME DET
TP-15
R17
FRAME PULSE POS
SW1
14P
10P
D42
IC8
FF
IC5
MMV
IC6
REC MMV
D16
D17
TP-6
P306
CTL HEAD
Q3
Q2
D12,13
SYNC DET
R26
R27
R28
C16
C17
R115
TP-3
IC9
COUNT DOWN
IC10
MMV
TP-9
Q7
AMP
Q8
AMP
TP-10
P75
TRACK PRESET
IC11
MMV
TP-11
Q9
AMP
IC12
AMP
TP-12
R85
P.B. CTL PULSE LEVEL
R68
REC PHASE
D33
D37
D32
R78
C64
Q13
D40
Q14
EF
D41
R102
SAW TOOTH LEVEL
TP-14
SAW TOOTH GEN
Q11,12
IC14
X1
OSC
COUNT DOWN
Q10
AMP
TP-13
SERVO LOCK
P323
D7
D11
SERVO LOCK
P321
R49
R53
R50
R52
R51
TP-5
R57
R56
R58
R55
R59
IC5
DRUM ERROR VOLT
P322
P327
TP-4
Q6, IC4
TRAPEZ
Q7
SAMPLE & HOLD
Q8
SF
R45
IC11
R47
R48
3 4 MDA
IC6
AMP
CAP ROT
TP-7
IC9
AMP
AMP
CAP FG
P325
TP-10
IC8
F-V CONV
C27~C29, R80~R82
FG f TRAP
IC7
AMP
R78
CAP DISCRI
R71
R73
IC12
IC7
AMP
TP-8
P326
IC1
AMP
IC2
COMP
Q6~10
SW & DRIVE
Q13,14
L6
P344
C12
C14
CAPSTAN MOTOR
M
Q15
IC11
Q9
R106
C42
IC11
C31
R86
R83
P324
REC TIME
CAP STOP
FF or REW
P.B.
3 2 SERVO-2

4-7 CAPSTAN SERVO BLOCK (DRUM SERVO BLOCK)

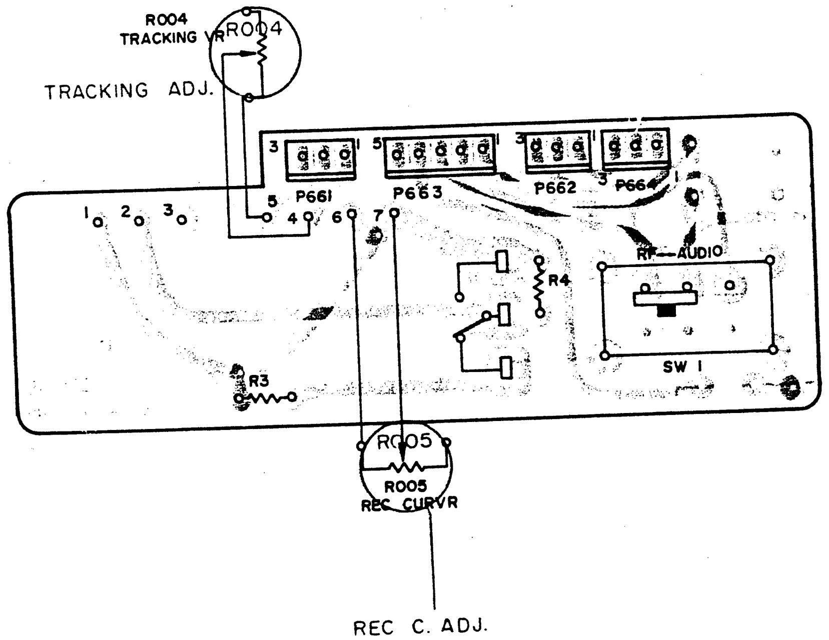
4.7.2 Drum Servo Block


3 0 SERVO-1
SW'D SYNC
P301
L1
C1
C2
R9
C9
D8
D9
R10
IC 1
R126
7.5V
D7
Q1
AMP
TP-1
SW1
14P
10P
D42
IC 2
2/3H MMV
1OH MMV
R17 FRAME PULSE POS.
TP-2
IC 3
FRAME DET
IC 8
FF
IC 5
MMV
TP-4
R35 REC SW POINT
TP-5
REC 12V
P307
Q6
FG AMP
TP-8
TP-7
R55 CH-2 PB SW POINT
R58 CH1 PB SW POINT
TP16
Q4
AMP
Q5
IC 7
MMV
DRUM P.U. HEAD
DRUM FG
P303
SW PULSE
P305
R26
R27
R28
C16
C17
R115
TP-3
D12, D13
SYNC DET
Q2
IC 14
X1
OSC
COUNT DOWN
Q10
TP17
TP-14
Q11, Q12
SAWTOOTH GEN.
TP-13
R49
R53
R50
R52
R51
R57
R56
R58
R55
R59
P327
SERVO LOCK
P323
DRUM ROT
IC6
TP-6
Q1, IC1
TRAPEZ
SAMPLE & HOLD
Q3
SF
+9V
R7
R8
IC 11
IC 12
R24
R25
P322
IC 2
F-V CONV
C9 ~ C11, R15 ~ R17
FG f Hz TRAP
Q4
IC 3
C14 ~ C17, R29 ~ R31
30Hz TRAP
Q5
R20 DRUM DISCRI
R39 SEARCH DISCRI
H. DISCRI
SEARCH
FF or REW
3 2 SERVO-2
3 4 MDA
SAW-TOOTH
P326
DRUM ERROR
COMP
Q1 ~ Q5
SW & DRIVE
Q11, Q12
L3
C6
C13
P342Y
DRUM MOTOR
M

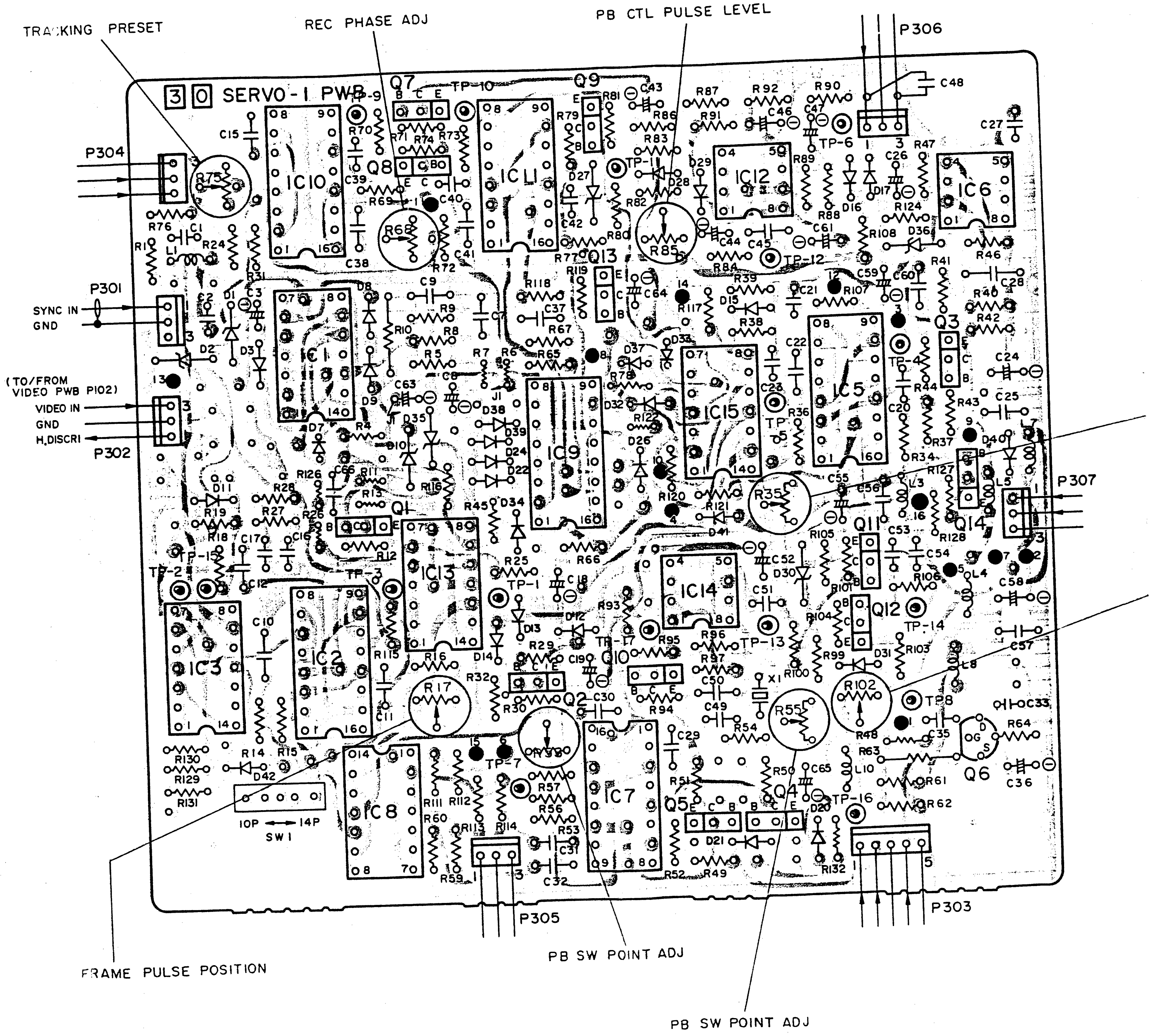
4-8 DRUM SERVO BLOCK
(CAPSTAN SERVO BLOCK)

4.8 SERVO AND PERIPHERAL CIRCUIT BOARDS

– BOTTOM SWITCH –

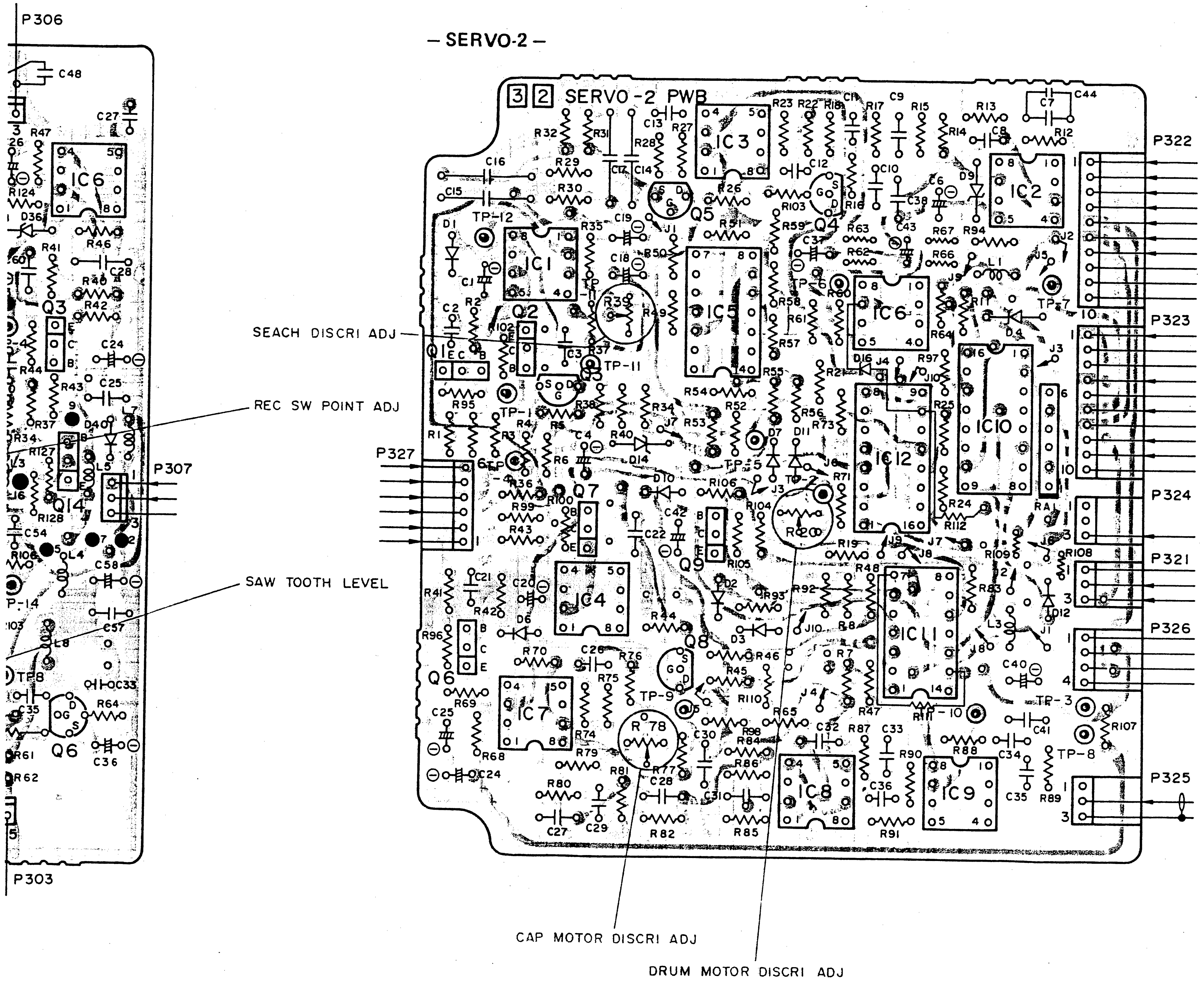

R004
TRACKING VR
R004
TRACKING ADJ.
P661
P663
P662
P664
RF—AUDIO
R4
R3
SW 1
1 2 3
5 4 6 7
R005
R005
REC CURVR
REC C. ADJ.

– SERVO-1 –

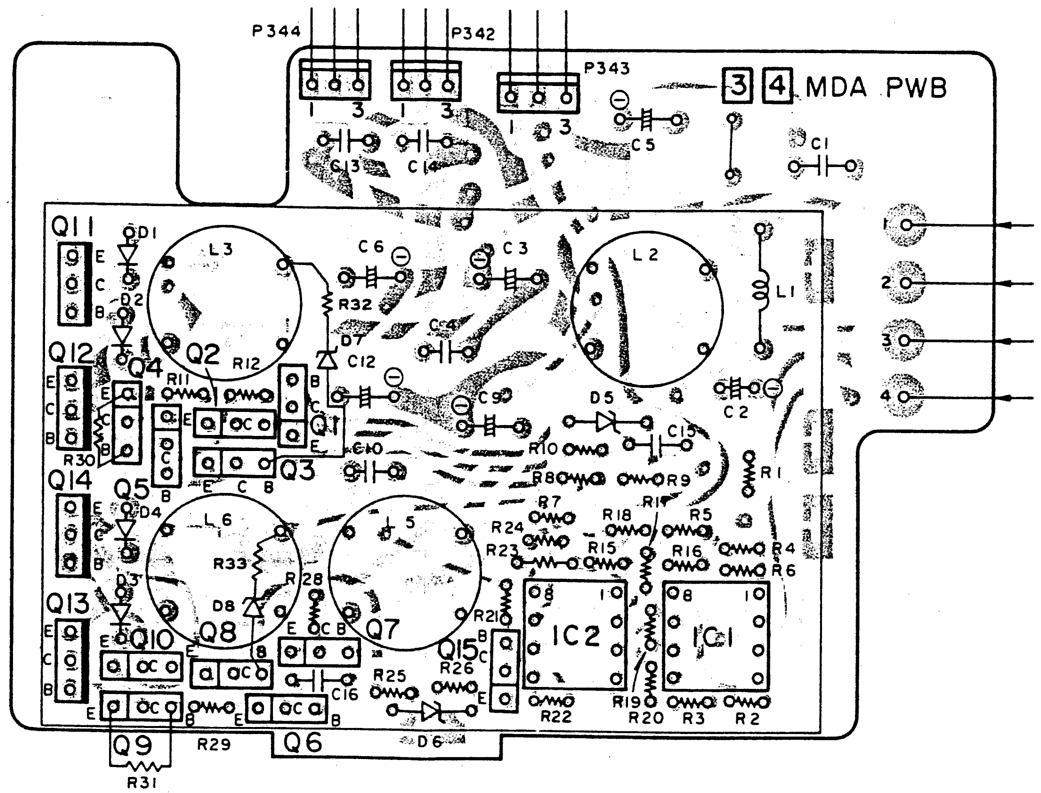

TRACKING PRESET
REC PHASE ADJ
PB CTL PULSE LEVEL
P306
30 SERVO-1 PWB
P304
P301
SYNC IN
GND
(TO/FROM VIDEO PWB P102)
VIDEO IN
GND
H.DISCRI
P302
P307
P305
P303
C48
IC10
IC11
IC12
IC6
IC1
IC9
IC15
IC5
IC13
IC14
IC3
IC2
IC8
IC7
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
R75
R68
R85
R35
R17
R58
R55
R102
TP-1
TP-2
TP-3
TP-4
TP-5
TP-6
TP-7
TP-8
TP-9
TP-10
TP-11
TP-12
TP-13
TP-14
TP-15
TP-16
TP-17
X1
SW 1
10P ←→ 14P
FRAME PULSE POSITION
PB SW POINT ADJ
PB SW POINT ADJ

H I J K L M N O

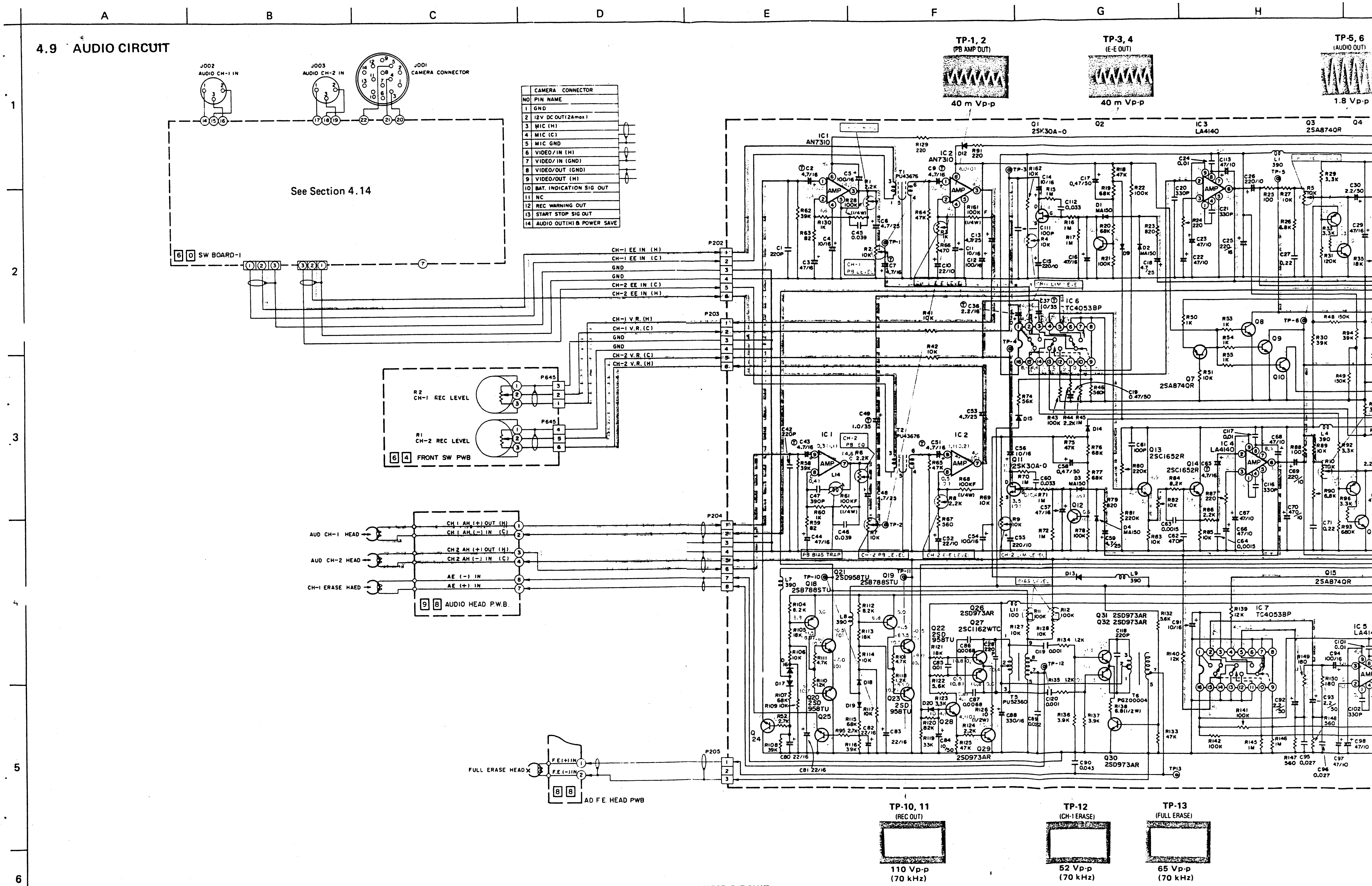
– SERVO-2 –


P306
P303
P307
P327
3 2 SERVO-2 PWB
P322
P323
P324
P321
P326
P325
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
TP-1
TP-3
TP-5
TP-7
TP-8
TP-9
TP-10
TP-11
TP-12
SEACH DISCRI ADJ
REC SW POINT ADJ
SAW TOOTH LEVEL
CAP MOTOR DISCRI ADJ
DRUM MOTOR DISCRI ADJ

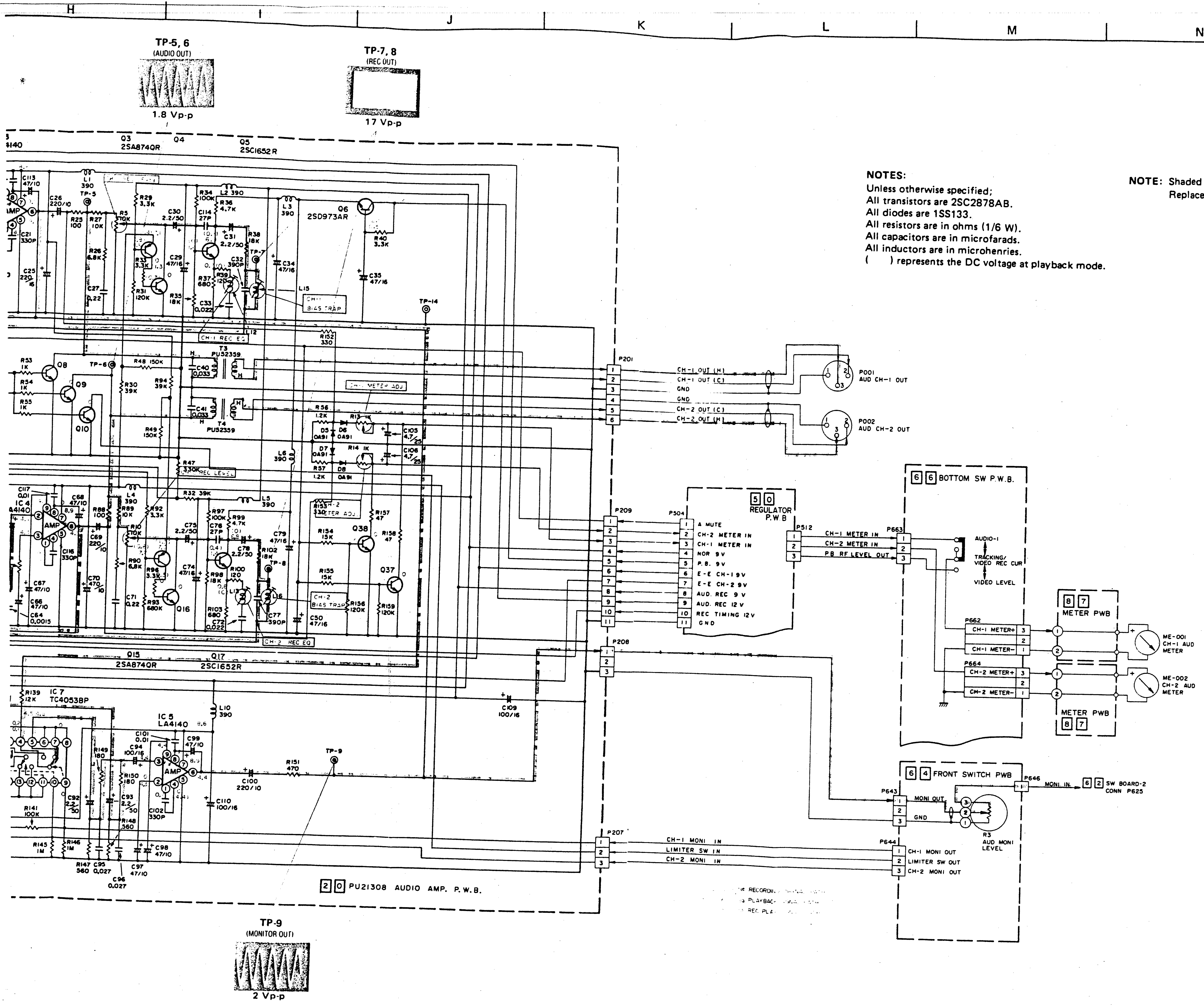
– MDA –


P344
P342
P343
3 4 MDA PWB
IC1
IC2
L1
L2
L3
L5
L6
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
Q12
Q13
Q14
Q15

4.9 AUDIO CIRCUIT


A
B
C
D
E
F
G
H
1
2
3
4
5
6
J002 AUDIO CH-1 IN
J003 AUDIO CH-2 IN
J001 CAMERA CONNECTOR
See Section 4.14
6 0 SW BOARD-1
6 4 FRONT SW PWB
R2 CH-1 REC LEVEL
R1 CH-2 REC LEVEL
P645
P202
P203
P204
P205
CH-1 EE IN (H)
CH-1 EE IN (C)
GND
CH-2 EE IN (C)
CH-2 EE IN (H)
CH-1 V.R. (H)
CH-1 V.R. (C)
CH-2 V.R. (C)
CH-2 V.R. (H)
AUD CH-1 HEAD
AUD CH-2 HEAD
CH-1 ERASE HAED
CH 1 AH (+) OUT (H)
CH 1 AH (-) IN (C)
CH 2 AH (+) OUT (H)
CH 2 AH (-) IN (C)
AE (-) IN
AE (+) IN
9 8 AUDIO HEAD P.W.B.
FULL ERASE HEAD
F.E.(+) IN
F.E.(-) IN
8 8 AD F.E. HEAD PWB
IC1 AN7310
IC2 AN7310
IC3 LA4140
IC4 LA4140
IC5 LA4140
IC6 TC4053BP
IC7 TC4053BP
Q1 2SK30A-O
Q3 2SA874OR
Q7 2SA874OR
Q11 2SK30A-O
Q13 2SC1652R
Q14 2SC1652R
Q15 2SA874OR
Q18 2SB788STU
Q19 2SB788STU
Q21 2SD958TU
Q26 2SD973AR
Q27 2SC1162WTC
Q29 2SD973AR
Q30 2SD973AR
Q31 2SD973AR
Q32 2SD973AR
T1 PU43676
T2 PU43676
T5 PU52360
T6 PG20004
TP-1, 2 (PB AMP OUT) 40 m Vp-p
TP-3, 4 (E-E OUT) 40 m Vp-p
TP-5, 6 (AUDIO OUT) 1.8 Vp-p
TP-10, 11 (REC OUT) 110 Vp-p (70 kHz)
TP-12 (CH-1 ERASE) 52 Vp-p (70 kHz)
TP-13 (FULL ERASE) 65 Vp-p (70 kHz)
PB BIAS TRAP
CH-1 PB LEVEL
CH-2 PB EQ
CH-2 PB LEVEL
CH-2 E-E LEVEL
CH-2 LIM LEVEL
BIAS LEVEL

	CAMERA CONNECTOR
NO	PIN NAME
1	GND
2	12V DC OUT(2Amax)
3	MIC (H)
4	MIC (C)
5	MIC GND
6	VIDEO/IN (H)
7	VIDEO/IN (GND)
8	VIDEO/OUT (GND)
9	VIDEO/OUT (H)
10	BAT. INDICATION SIG OUT
11	NC
12	REC WARNING OUT
13	START STOP SIG OUT
14	AUDIO OUT(H) & POWER SAVE

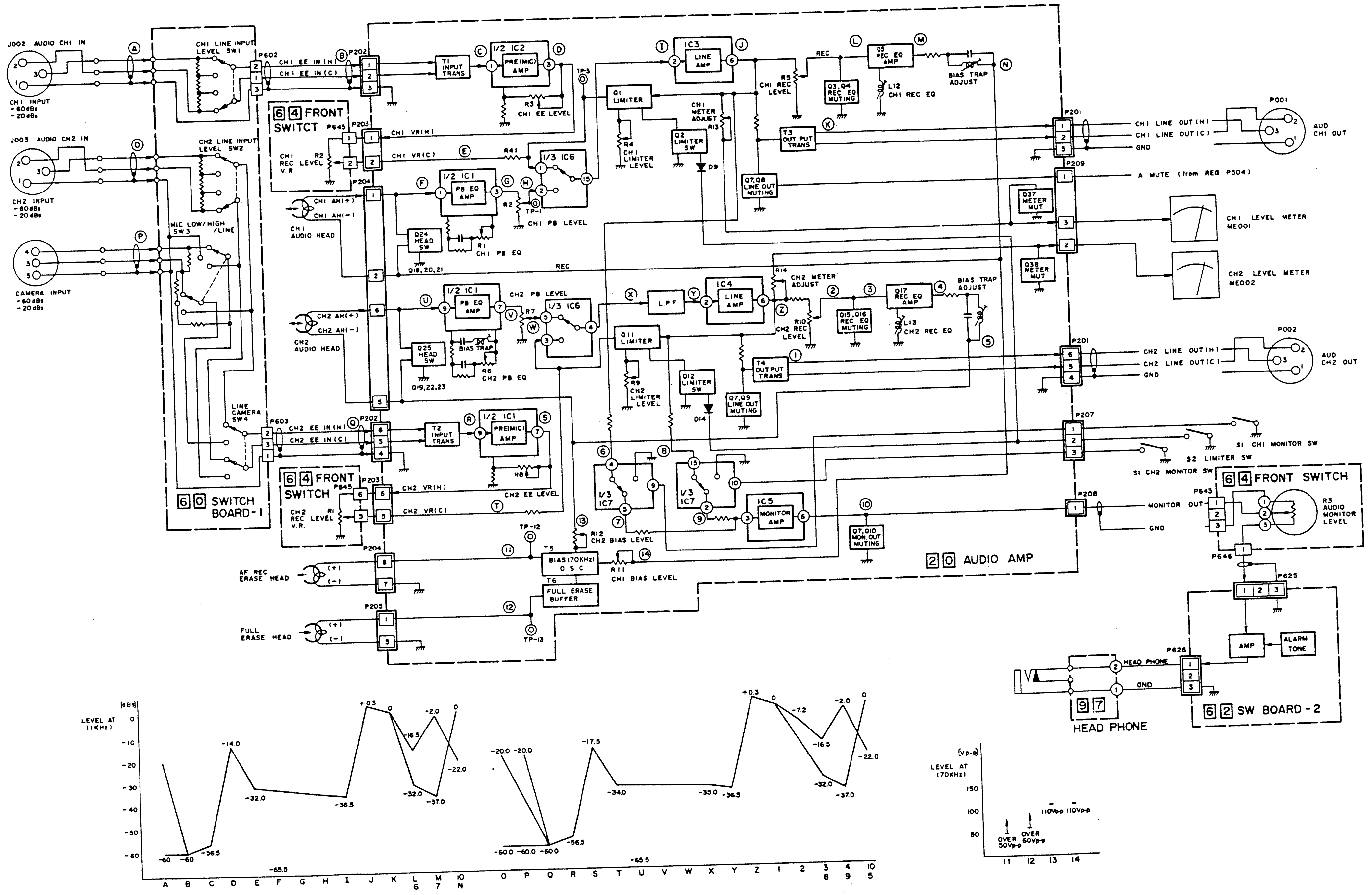

H
I
J
K
L
M
N
O
TP-5, 6
(AUDIO OUT)
1.8 Vp-p
TP-7, 8
(REC OUT)
17 Vp-p
Q3
2SA874QR
Q4
Q5
2SC1652R
Q6
2SD973AR
CH-1 BIAS TRAP
CH-1 REC EQ
T3
PU52359
T4
PU52359
CH-1 METER ADJ
REC LEVEL
CH-2 METER ADJ
CH-2 BIAS TRAP
CH-2 REC EQ
IC 4
LA4140
Q15
2SA874QR
Q17
2SC1652R
IC 7
TC4053BP
IC 5
LA4140
TP-14
TP-9
P201
CH-1 OUT (H)
CH-1 OUT (C)
GND
GND
CH-2 OUT (C)
CH-2 OUT (H)
P001
AUD CH-1 OUT
P002
AUD CH-2 OUT
P209
P504
5 0 REGULATOR P.W.B
A MUTE
CH-2 METER IN
CH-1 METER IN
NOR 9 V
P.B. 9 V
E-E CH-1 9 V
E-E CH-2 9 V
AUD. REC 9 V
AUD. REC 12 V
REC TIMING 12 V
GND
P512
CH-1 METER IN
CH-2 METER IN
PB RF LEVEL OUT
P663
6 6 BOTTOM SW P.W.B.
AUDIO-1
TRACKING/ VIDEO REC CUR
VIDEO LEVEL
8 7 METER PWB
P662
CH-1 METER+
CH-1 METER−
P664
CH-2 METER+
CH-2 METER−
ME-001 CH-1 AUD METER
ME-002 CH-2 AUD METER
METER PWB 8 7
P208
6 4 FRONT SWITCH PWB
P646
MONI IN
6 2 SW BOARD-2 CONN P625
P643
MONI OUT
GND
R3 AUD MONI LEVEL
P207
CH-1 MONI IN
LIMITER SW IN
CH-2 MONI IN
P644
CH-1 MONI OUT
LIMITER SW OUT
CH-2 MONI OUT
2 0 PU21308 AUDIO AMP. P.W.B.
TP-9
(MONITOR OUT)
2 Vp-p

NOTES:

Unless otherwise specified;
All transistors are 2SC2878AB.
All diodes are 1SS133.
All resistors are in ohms (1/6 W).
All capacitors are in microfarads.
All inductors are in microhenries.
( ) represents the DC voltage at playback mode.

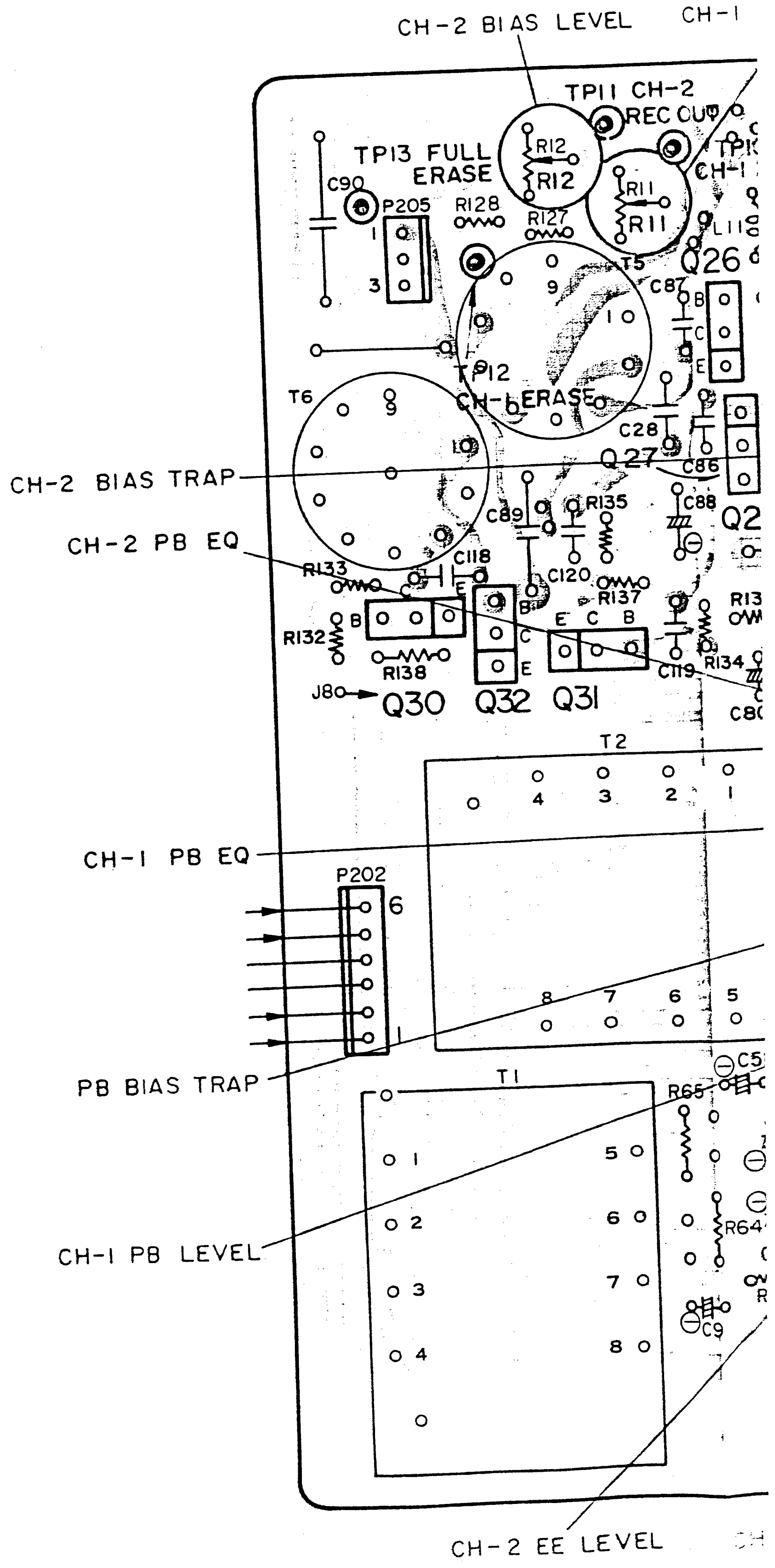
NOTE: Shaded ( ) parts are critical for safety.
Replace only with specified part numbers.

4.10 AUDIO BLOCK DIAGRAM


J002 AUDIO CH1 IN
CH1 INPUT -60dBs -20dBs
J003 AUDIO CH2 IN
CH2 INPUT -60dBs -20dBs
CAMERA INPUT -60dBs -20dBs
CH1 LINE INPUT LEVEL SW1
CH2 LINE INPUT LEVEL SW2
MIC LOW/HIGH SW3 /LINE
LINE CAMERA SW4
6 0 SWITCH BOARD-1
6 4 FRONT SWITCT
6 4 FRONT SWITCH
CH1 REC LEVEL V.R.
CH2 REC LEVEL V.R.
CH1 EE IN (H)
CH1 EE IN (C)
CH2 EE IN (H)
CH2 EE IN (C)
CH1 VR (H)
CH1 VR (C)
CH2 VR (H)
CH2 VR (C)
CH1 AH (+)
CH1 AH (-)
CH1 AUDIO HEAD
CH2 AH (+)
CH2 AH (-)
CH2 AUDIO HEAD
T1 INPUT TRANS
T2 INPUT TRANS
1/2 IC2 PRE (MIC) AMP
1/2 IC1 PRE (MIC) AMP
1/2 IC1 PB EQ AMP
R3 CH1 EE LEVEL
R8 CH2 EE LEVEL
R1 CH1 PB EQ
R6 CH2 PB EQ
R2 CH1 PB LEVEL
R7 CH2 PB LEVEL
Q24 HEAD SW
Q25 HEAD SW
BIAS TRAP
Q18,20,21
Q19,22,23
1/3 IC6
Q1 LIMITER
R4 CH1 LIMITER LEVEL
Q11 LIMITER
R9 CH2 LIMITER LEVEL
Q2 LIMITER SW
Q12 LIMITER SW
D9
D14
IC3 LINE AMP
IC4 LINE AMP
LPF
R5 CH1 REC LEVEL
R10 CH2 REC LEVEL
CH1 METER ADJUST R13
R14 CH2 METER ADJUST
Q3,Q4 REC EQ MUTING
Q15,Q16 REC EQ MUTING
Q5 REC EQ AMP
Q17 REC EQ AMP
L12 CH1 REC EQ
L13 CH2 REC EQ
BIAS TRAP ADJUST
T3 OUT PUT TRANS
T4 OUTPUT TRANS
Q7,Q8 LINE OUT MUTING
Q7,Q9 LINE OUT MUTING
Q37 METER MUT
Q38 METER MUT
REC
P201
P209
P207
P208
CH1 LINE OUT (H)
CH1 LINE OUT (C)
GND
CH2 LINE OUT (H)
CH2 LINE OUT (C)
A MUTE (from REG P504)
P001 AUD CH1 OUT
P002 AUD CH2 OUT
CH1 LEVEL METER ME001
CH2 LEVEL METER ME002
S1 CH1 MONITOR SW
S2 LIMITER SW
S1 CH2 MONITOR SW
1/3 IC7
IC5 MONITOR AMP
Q7,Q10 MON. OUT MUTING
MONITOR OUT
6 4 FRONT SWITCH
R3 AUDIO MONITOR LEVEL
P643
P646
P625
AMP
ALARM TONE
P626
HEAD PHONE
9 7 HEAD PHONE
6 2 SW BOARD-2
TP-3
TP-1
TP-12
TP-13
T5 BIAS (70KHz) OSC
T6 FULL ERASE BUFFER
R12 CH2 BIAS LEVEL
R11 CH1 BIAS LEVEL
AF REC ERASE HEAD
FULL ERASE HEAD
P202
P203
P204
P205
P602
P603
P645
2 0 AUDIO AMP
LEVEL AT (1KHz) [dBs]
0 -10 -20 -30 -40 -50 -60
-60 -60 -56.5 -14.0 -32.0 -65.5 -36.5 +0.3 0 -16.5 -2.0 0 -32.0 -37.0 -22.0
-20.0 -20.0 -60.0 -60.0 -60.0 -56.5 -17.5 -34.0 -65.5 -35.0 -36.5 +0.3 0 -7.2 -16.5 -2.0 0 -32.0 -37.0 -22.0
A B C D E F G H I J K L M 10 6 7 N
O P Q R S T U V W X Y Z 1 2 3 4 10 8 9 5
LEVEL AT (70KHz) [Vp-p]
150 100 50
OVER 50Vp-p
OVER 60Vp-p
110Vp-p 110Vp-p
11 12 13 14

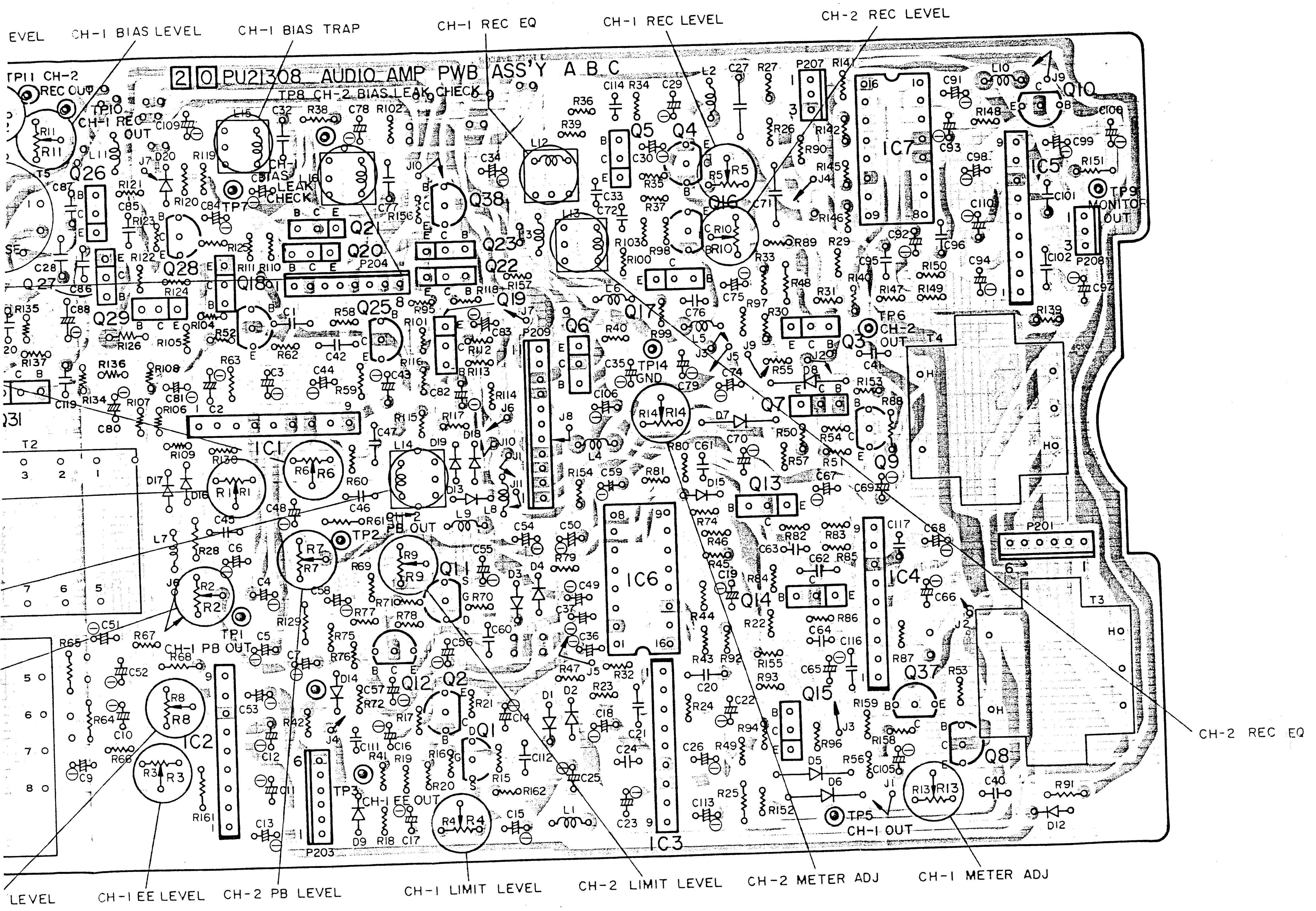
4.11 AUDIO AND PERIPHERAL CIRCUIT BOA

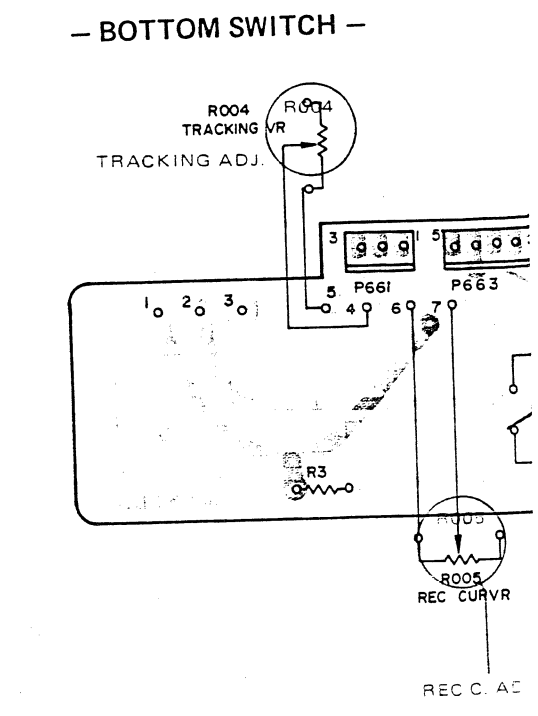
– AUDIO AMP –

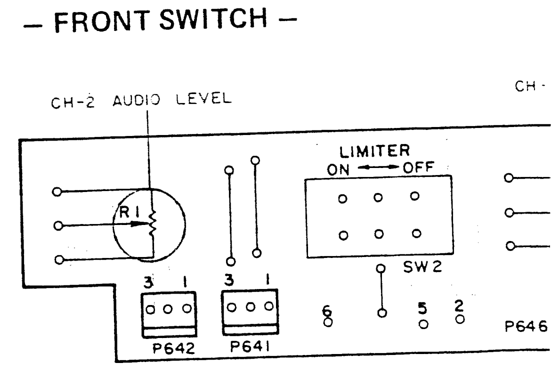

CH-2 BIAS LEVEL
CH-1
TP11 CH-2 REC OUT
TP13 FULL ERASE
C90
P205
R128
R127
R12
R11
T5
Q26
C87
TP12 CH-1 ERASE
T6
C28
Q27
C86
C88
CH-2 BIAS TRAP
R135
C89
CH-2 PB EQ
R133
C118
C120
R137
R132
R138
R134
C119
J80
Q30
Q32
Q31
T2
CH-1 PB EQ
P202
PB BIAS TRAP
T1
R65
C5
R64
C9
CH-1 PB LEVEL
CH-2 EE LEVEL

H I J K L M N O P

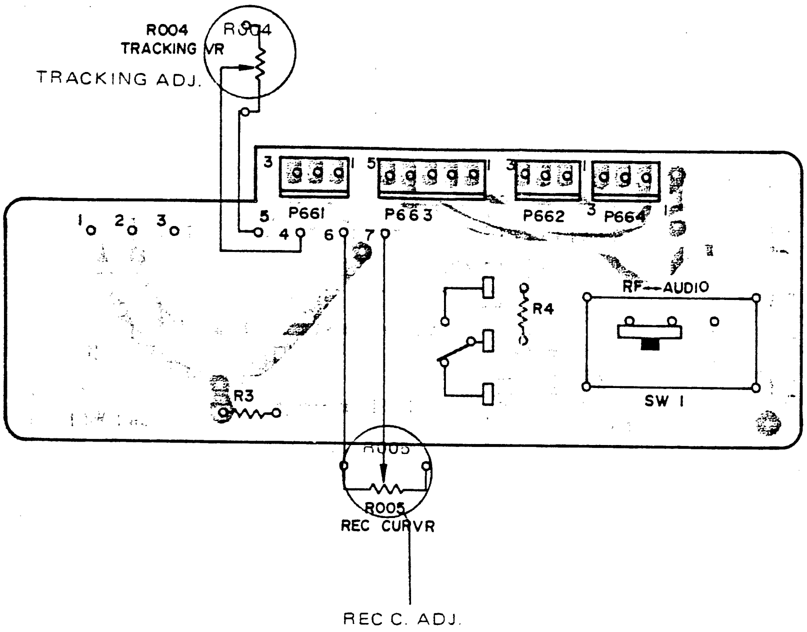
- CIRCUIT BOARDS


EVEL
CH-1 BIAS LEVEL
CH-1 BIAS TRAP
CH-1 REC EQ
CH-1 REC LEVEL
CH-2 REC LEVEL
2 0 PU21308 AUDIO AMP PWB ASS'Y A B C
TP11 CH-2 REC OUT
TP10 CH-1 REC OUT
TP8 CH-2 BIAS LEAK CHECK
TP7 CH-1 BIAS LEAK CHECK
TP9 MONITOR OUT
TP6 CH-2 OUT
TP14 GND
TP2 CH-2 PB OUT
TP1 CH-1 PB OUT
TP3 CH-1 EE OUT
TP5 CH-1 OUT
IC1
IC2
IC3
IC4
IC5
IC6
IC7
T2
T3
T4
T5
P201
P203
P204
P207
P208
P209
CH-2 REC EQ
LEVEL
CH-1 EE LEVEL
CH-2 PB LEVEL
CH-1 LIMIT LEVEL
CH-2 LIMIT LEVEL
CH-2 METER ADJ
CH-1 METER ADJ

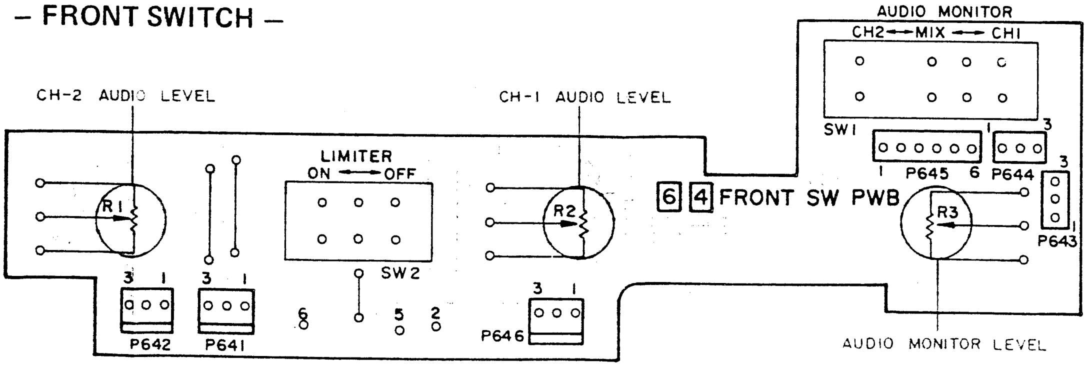

- BOTTOM SWITCH -
R004 TRACKING VR
TRACKING ADJ.
R004
P661
P663
R3
R005
REC CURVR
REC C. AE


- FRONT SWITCH -
CH-2 AUDIO LEVEL
CH-
LIMITER
ON ← OFF
SW2
R1
P642
P641
P646

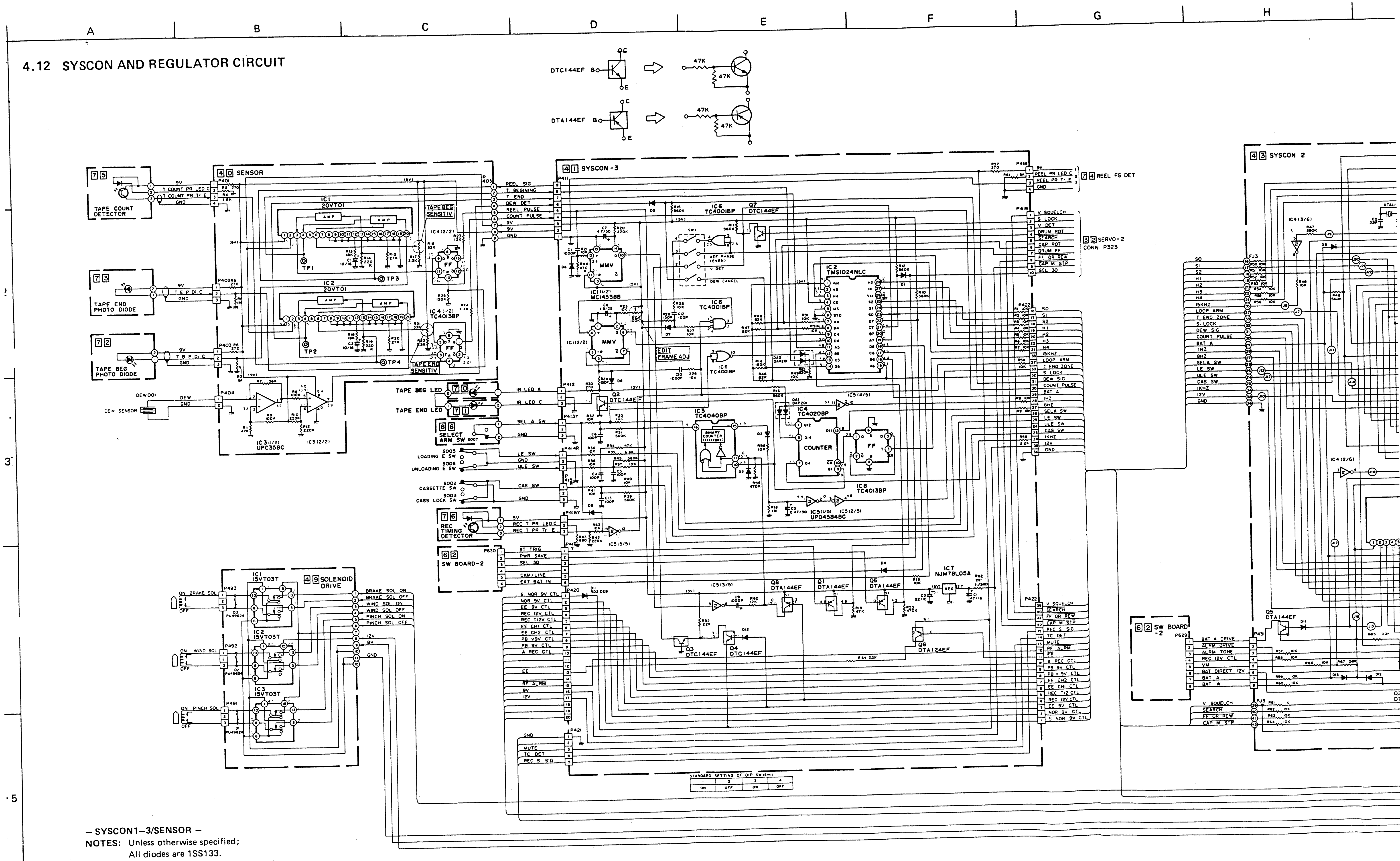
– BOTTOM SWITCH –


R004
TRACKING VR
TRACKING ADJ.
R004
P661
P663
P662
P664
1 2 3
4 5 6 7
RF ←→ AUDIO
R4
SW 1
R3
R005
REC CUR VR
REC C. ADJ.

– FRONT SWITCH –


AUDIO MONITOR
CH2 ←→ MIX ←→ CH1
SW1
P645
P644
P643
CH-2 AUDIO LEVEL
R1
LIMITER
ON ←→ OFF
SW2
CH-1 AUDIO LEVEL
R2
6 4 FRONT SW PWB
R3
P642
P641
P646
AUDIO MONITOR LEVEL

4.12 SYSCON AND REGULATOR CIRCUIT


A
B
C
D
E
F
G
H
DTC144EF
DTA144EF
47K
4|0 SENSOR
4|1 SYSCON-3
4|3 SYSCON 2
7|5 TAPE COUNT DETECTOR
7|3 TAPE END PHOTO DIODE
7|2 TAPE BEG PHOTO DIODE
DEW001
DEW SENSOR
IC1 20VT01
IC2 20VT01
IC3(1/2) UPC358C
IC4(1/2) TC4013BP
TAPE BEG SENSITIV
TAPE END SENSITIV
TP1
TP2
TP3
TP4
IC1(1/2) MC14538B
MMV
IC6 TC4001BP
Q7 DTC144EF
IC2 TMS1024NLC
IC3 TC4040BP
IC4 TC4020BP
COUNTER
IC8 TC4013BP
FF
IC5(1/5) UPD4584BC
EDIT FRAME ADJ
TAPE BEG LED
TAPE END LED
7|0
7|1
8|6 SELECT ARM SW
LOADING E SW
UNLOADING E SW
CASSETTE SW
CASS LOCK SW
7|6 REC TIMING DETECTOR
6|2 SW BOARD-2
4|9 SOLENOID DRIVE
IC1 15VT03T
IC2 15VT03T
IC3 15VT03T
BRAKE SOL ON
BRAKE SOL OFF
WIND SOL ON
WIND SOL OFF
PINCH SOL ON
PINCH SOL OFF
Q8 DTA144EF
Q1 DTA144EF
Q5 DTA144EF
IC7 NJM78L05A
Q3 DTC144EF
Q4 DTC144EF
Q6 DTA124EF
7|4 REEL FG DET
3|2 SERVO-2 CONN. P323
6|2 SW BOARD -2
STANDARD SETTING OF DIP SW(SW1)
1 2 3 4
ON OFF ON OFF

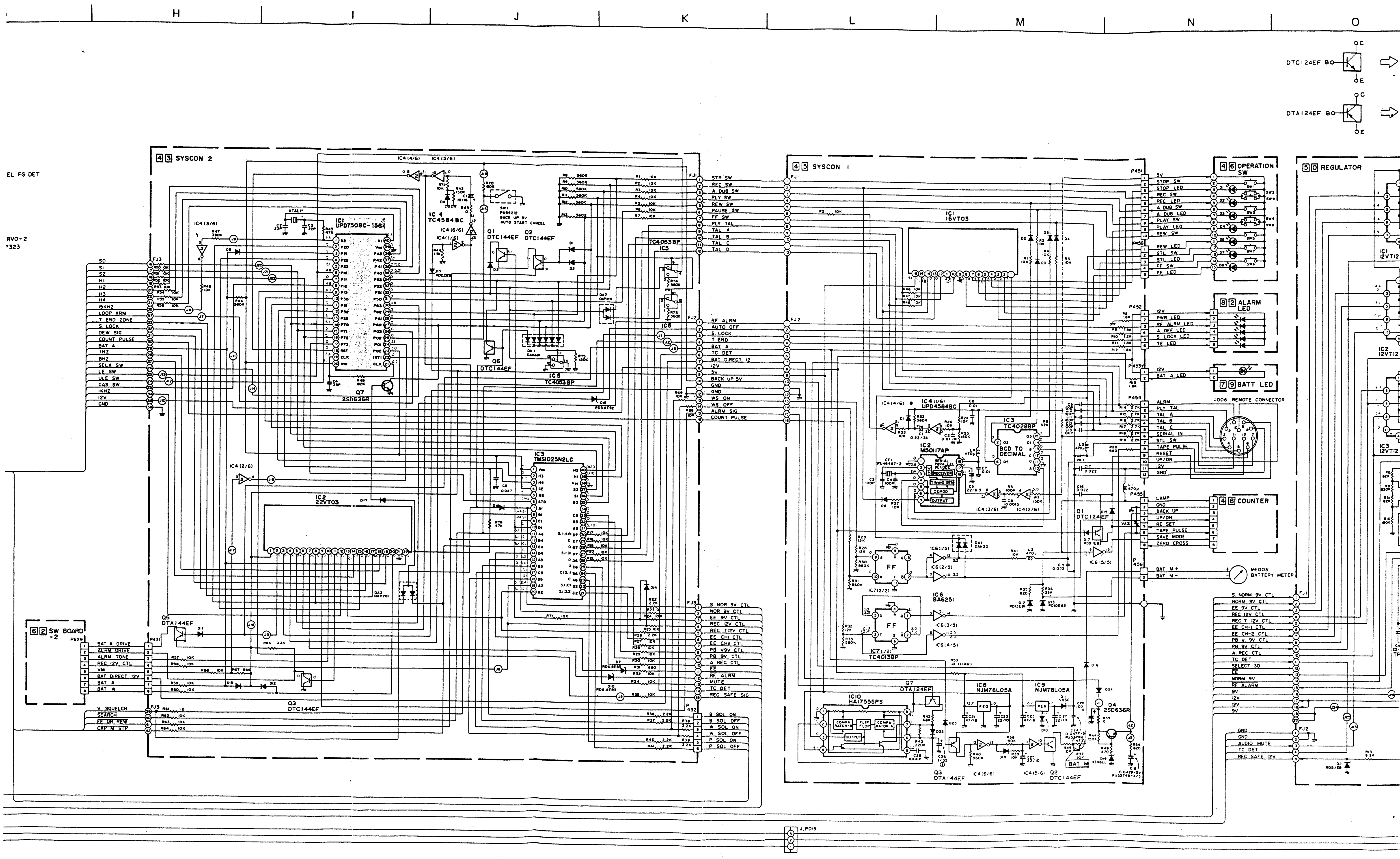
– SYSCON1–3/SENSOR –

NOTES: Unless otherwise specified;

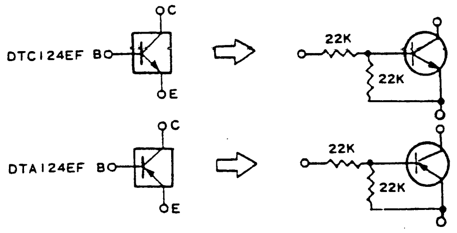
All diodes are 1SS133.

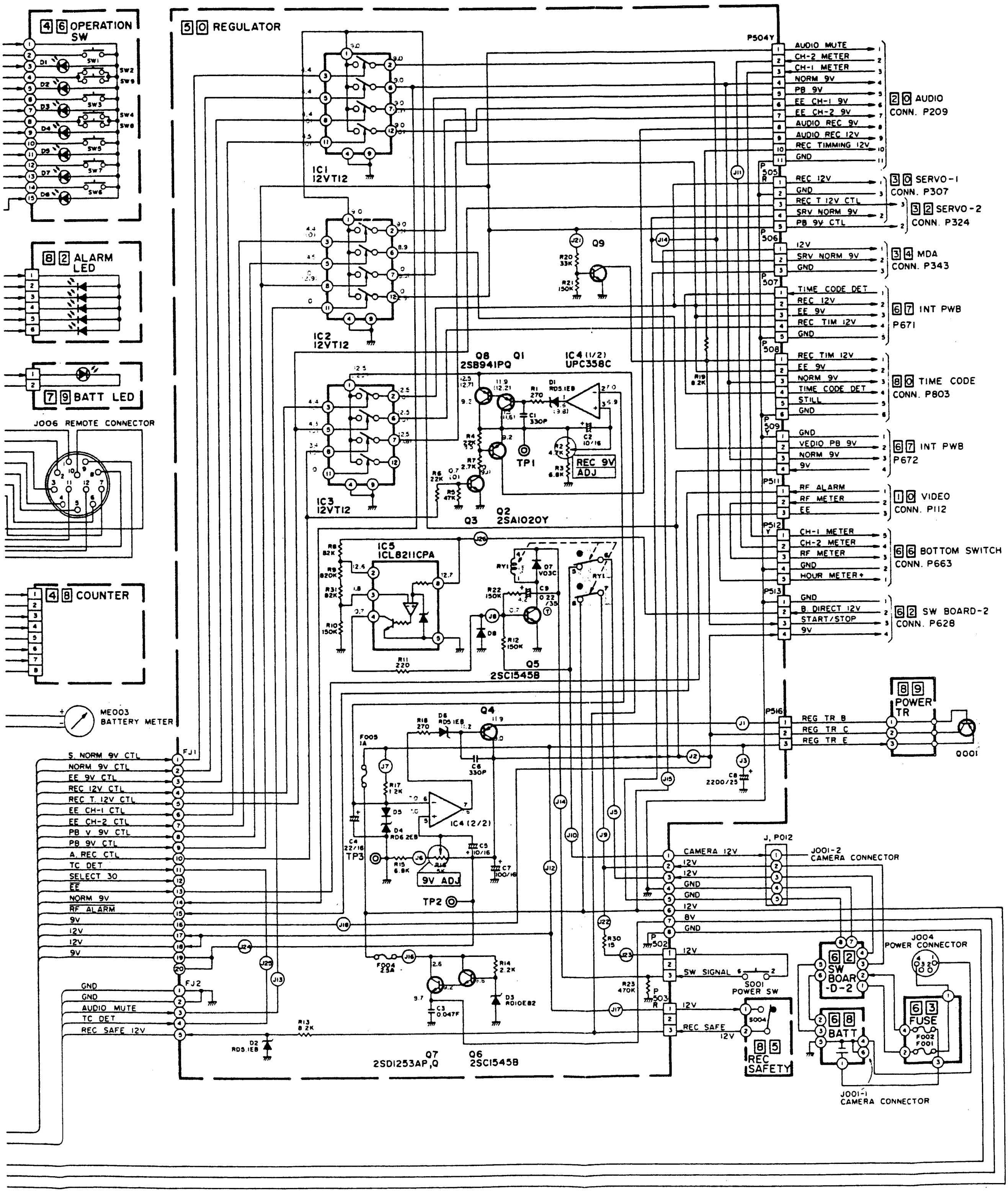
All capacitors are in microfards, inductors are in henries, resistors are in ohms (1/6 W).

( ) represents the DC voltage at playback mode.


H
I
J
K
L
M
N
O
DTC124EF
DTA124EF
EL FG DET
RVO-2
P323
4 3 SYSCON 2
IC1 UPD7508C-1564
IC2 22VT03
IC3 TMS1025N2LC
IC4 TC4584BC
IC5 TC4053BP
Q1 DTC144EF
Q2 DTC144EF
Q3 DTC144EF
Q5 DTA144EF
Q6 DTC144EF
Q7 2SD636R
SW1 PU54212 BACK UP 5V AUTO START CANCEL
6 2 SW BOARD -2
P629
P431
FJ1
FJ2
FJ3
4 5 SYSCON 1
IC1 16VT03
IC2 M50117AP
IC3 TC4028BP
BCD TO DECIMAL
IC4 UPD4584BC
IC6 BA6251
IC7 TC4013BP
IC8 NJM78L05A
IC9 NJM78L05A
IC10 HA17555PS
Q1 DTC124EF
Q2 DTC144EF
Q3 DTA144EF
Q4 2SD636R
Q7 DTA124EF
4 6 OPERATION SW
8 2 ALARM LED
7 9 BATT LED
J006 REMOTE CONNECTOR
4 8 COUNTER
ME003 BATTERY METER
5 0 REGULATOR
IC1 12VT12
IC2 12VT12
IC3 12VT12
J, P013

NOTE :
Shaded ( ) parts are critical for safety.
Replace only with specified part numbers.

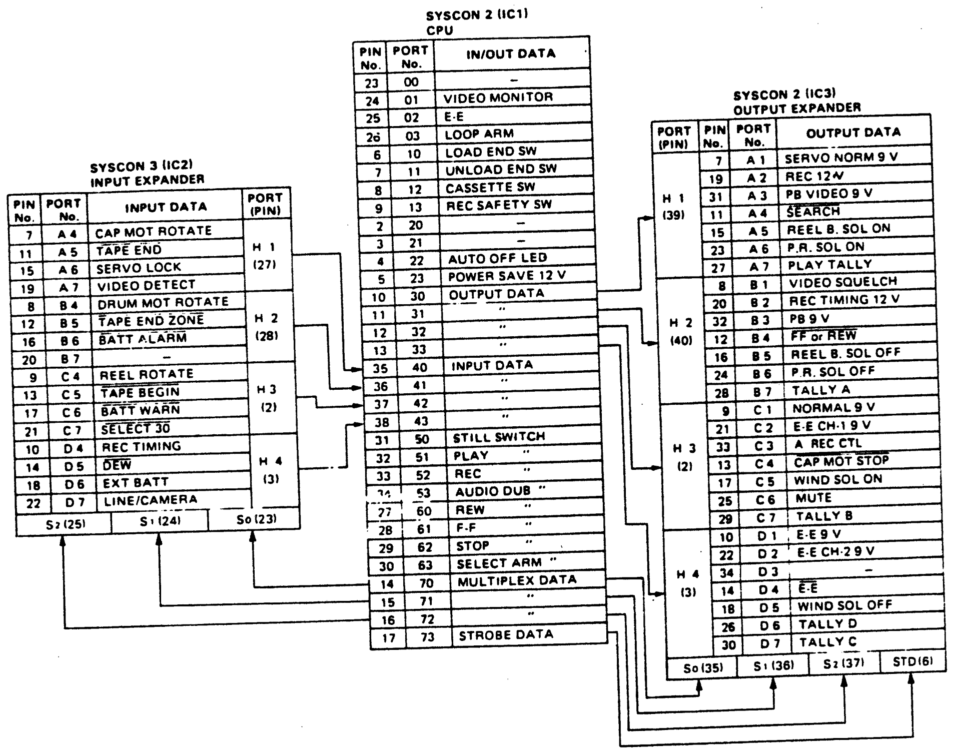

DTC124EF
B
C
E
22K
22K
DTA124EF
B
C
E
22K
22K


46 OPERATION SW
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
SW9
D1
D2
D3
D4
D5
D6
D7
82 ALARM LED
79 BATT LED
J006 REMOTE CONNECTOR
48 COUNTER
ME003 BATTERY METER
50 REGULATOR
IC1 12VT12
IC2 12VT12
IC3 12VT12
Q8 2SB941PQ
Q1
IC4 (1/2) UPC358C
Q3
Q2 2SA1020Y
TP1
REC 9V ADJ
Q9
R20 33K
R21 150K
R19 8.2K
IC5 ICL8211CPA
RY1
D7 V03C
Q5 2SC1545B
Q4
D6 RD5.1EB
F005 1A
IC4 (2/2)
TP3
9V ADJ
TP2
F004 2.5A
Q7 2SD1253AP,Q
Q6 2SC1545B
D3 RD10EB2
D2 RD5.1EB
C8 2200/25
P504Y
AUDIO MUTE
CH-2 METER
CH-1 METER
NORM 9V
PB 9V
EE CH-1 9V
EE CH-2 9V
AUDIO REC 9V
AUDIO REC 12V
REC TIMMING 12V
GND
20 AUDIO CONN. P209
P505R
REC 12V
GND
REC T 12V CTL
SRV NORM 9V
PB 9V CTL
30 SERVO-1 CONN. P307
32 SERVO-2 CONN. P324
P506
12V
SRV NORM 9V
GND
34 MDA CONN. P343
P507
TIME CODE DET
REC 12V
EE 9V
REC TIM 12V
GND
67 INT PWB P671
P508
REC TIM 12V
EE 9V
NORM 9V
TIME CODE DET
STILL
GND
80 TIME CODE CONN. P803
P509Y
GND
VEDIO PB 9V
NORM 9V
9V
67 INT PWB P672
P511
RF ALARM
RF METER
EE
10 VIDEO CONN. P112
P512Y
CH-1 METER
CH-2 METER
RF METER
GND
HOUR METER+
66 BOTTOM SWITCH CONN. P663
P513
GND
B. DIRECT 12V
START/STOP
9V
62 SW BOARD-2 CONN. P628
P516
REG TR B
REG TR C
REG TR E
89 POWER TR
Q001
FJ1
S. NORM 9V CTL
NORM 9V CTL
EE 9V CTL
REC 12V CTL
REC T. 12V CTL
EE CH-1 CTL
EE CH-2 CTL
PB V 9V CTL
PB 9V CTL
A. REC CTL
TC DET
SELECT 30
EE
NORM 9V
RF ALARM
9V
12V
12V
9V
FJ2
GND
GND
AUDIO MUTE
TC DET
REC SAFE 12V
J, P012
CAMERA 12V
12V
12V
GND
GND
12V
8V
GND
J001-2 CAMERA CONNECTOR
P502
SW SIGNAL
S001 POWER SW
P503R
REC SAFE
S004
85 REC SAFETY
62 SW BOARD-2
68 BATT
J004 POWER CONNECTOR
63 FUSE
F002
F001
J001-1 CAMERA CONNECTOR

— REGULATOR —
Unless otherwise specified;
PNP Transistor is 2SB641Q,R
NPN Transistor is 2SD636Q,R
Diode is 1SS133

4.13 SYSCON, REGULATOR AND PERIPHERAL CIRCUIT BOARDS

– CPU EXPANDER IN/OUT –



SYSCON 3 (IC2)
INPUT EXPANDER

PIN No.	PORT No.	INPUT DATA	PORT (PIN)
7	A 4	CAP MOT ROTATE	H 1 (27)
11	A 5	$\overline{\text{TAPE END}}$	
15	A 6	SERVO LOCK	
19	A 7	VIDEO DETECT	
8	B 4	DRUM MOT ROTATE	H 2 (28)
12	B 5	$\overline{\text{TAPE END ZONE}}$	
16	B 6	$\overline{\text{BATT ALARM}}$	
20	B 7	–	
9	C 4	REEL ROTATE	H 3 (2)
13	C 5	$\overline{\text{TAPE BEGIN}}$	
17	C 6	$\overline{\text{BATT WARN}}$	
21	C 7	$\overline{\text{SELECT 30}}$	
10	D 4	REC TIMING	H 4 (3)
14	D 5	$\overline{\text{DEW}}$	
18	D 6	EXT BATT	
22	D 7	LINE/CAMERA	

S2 (25) | S1 (24) | S0 (23)

SYSCON 2 (IC1)
CPU

PIN No.	PORT No.	IN/OUT DATA
23	00	–
24	01	VIDEO MONITOR
25	02	E-E
26	03	LOOP ARM
6	10	LOAD END SW
7	11	UNLOAD END SW
8	12	CASSETTE SW
9	13	REC SAFETY SW
2	20	–
3	21	–
4	22	AUTO OFF LED
5	23	POWER SAVE 12 V
10	30	OUTPUT DATA
11	31	"
12	32	"
13	33	"
35	40	INPUT DATA
36	41	"
37	42	"
38	43	"
31	50	STILL SWITCH
32	51	PLAY "
33	52	REC "
34	53	AUDIO DUB "
27	60	REW "
28	61	F-F "
29	62	STOP "
30	63	SELECT ARM "
14	70	MULTIPLEX DATA
15	71	"
16	72	"
17	73	STROBE DATA

SYSCON 2 (IC3)
OUTPUT EXPANDER

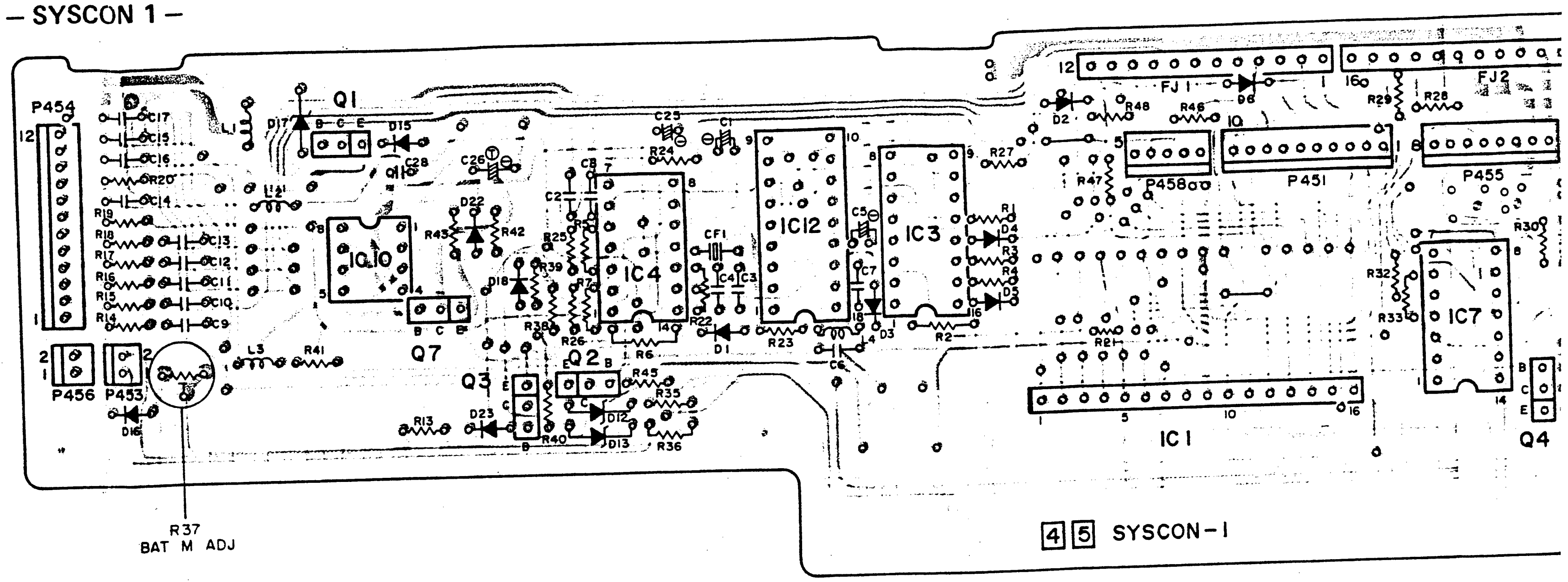
PORT (PIN)	PIN No.	PORT No.	OUTPUT DATA
H 1 (39)	7	A 1	SERVO NORM 9 V
	19	A 2	REC 12 V
	31	A 3	PB VIDEO 9 V
	11	A 4	$\overline{\text{SEARCH}}$
	15	A 5	REEL B. SOL ON
	23	A 6	P.R. SOL ON
	27	A 7	PLAY TALLY
H 2 (40)	8	B 1	VIDEO SQUELCH
	20	B 2	REC TIMING 12 V
	32	B 3	PB 9 V
	12	B 4	FF or $\overline{\text{REW}}$
	16	B 5	REEL B. SOL OFF
	24	B 6	P.R. SOL OFF
	28	B 7	TALLY A
H 3 (2)	9	C 1	NORMAL 9 V
	21	C 2	E-E CH-1 9 V
	33	C 3	A REC CTL
	13	C 4	$\overline{\text{CAP MOT STOP}}$
	17	C 5	WIND SOL ON
	25	C 6	MUTE
	29	C 7	TALLY B
H 4 (3)	10	D 1	E-E 9 V
	22	D 2	E-E CH-2 9 V
	34	D 3	–
	14	D 4	$\overline{\text{E-E}}$
	18	D 5	WIND SOL OFF
	26	D 6	TALLY D
	30	D 7	TALLY C

S0 (35) | S1 (36) | S2 (37) | STD (6)

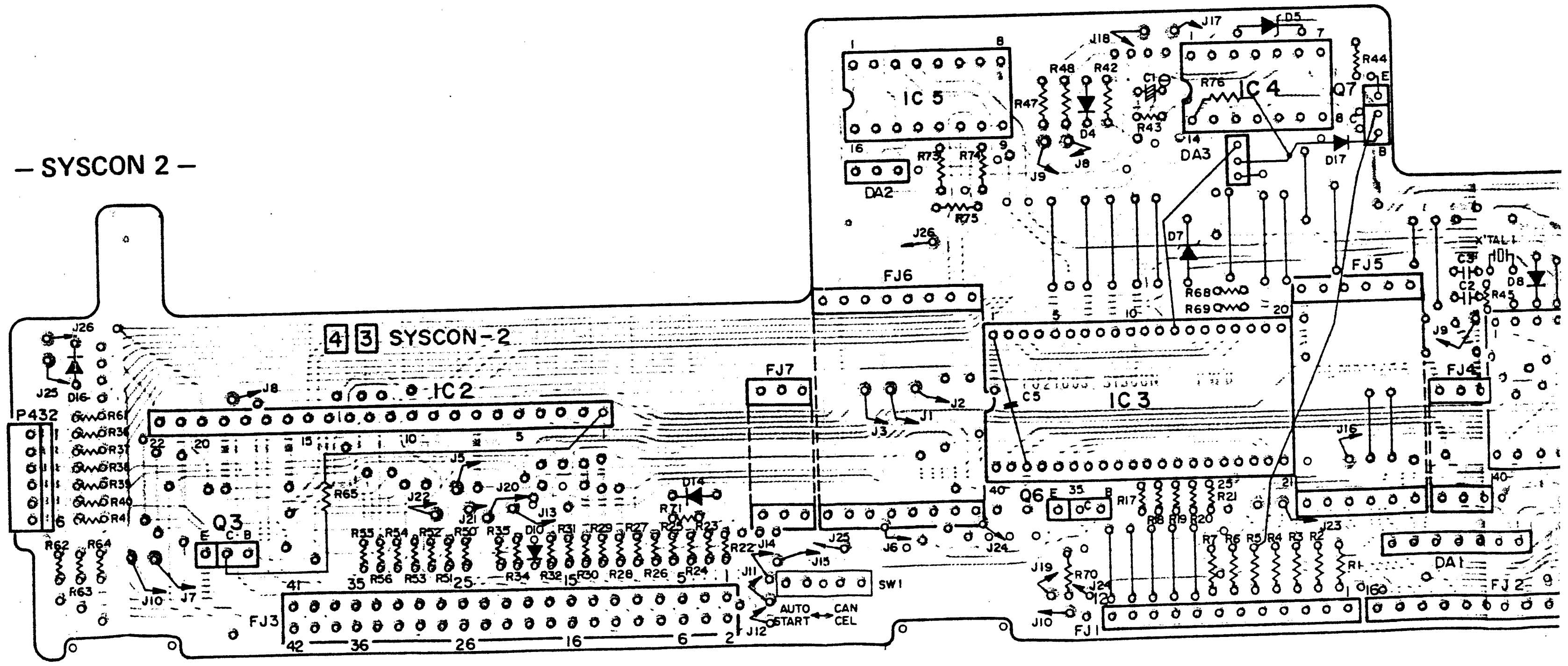
- **TERMINAL FUNCTIONS**

Terminal Marking	Input/Output	Functions	Reset Time
P00/INT 0	IN	4-bit IN terminal of Port 0 (4-bit IN port) External Interrupt IN terminal (INT 0) Serial Clock IN/OUT terminal ($\overline{\text{SCK}}$), and also used as Serial Data IN/OUT terminal (S1, S0).	Input
P01/$\overline{\text{SCK}}$	IN/OUT		
P02/S0	IN/OUT		
P03/S1	IN		
P10–P13	IN/OUT	4-bit IN/OUT terminal of Port 1 (4-bit IN/OUT port) (w/o Latch)	
P20/$\overline{\text{PTSB}}$	OUT	4-bit OUT terminal of Port 2 (4-bit OUT port) Also used as Strobe OUT terminal ($\overline{\text{PSTB}}$) and TOUT OUT terminal (PT OUT).	High Impedance
P21/PT OUT			
P22			
P23			
P30–P33	OUT	4-bit OUT terminal of Port 3 (4-bit OUT port)	High Impedance
P40–P43	IN/OUT	4-bit IN/OUT terminal of Port 4 (4-bit IN/OUT port)	Input
P50–P53	IN/OUT	4-bit IN/OUT terminal of Port 5 (4-bit IN/OUT port)	Input
P60–P63	IN/OUT	4-bit IN/OUT terminal of Port 6 (Programmable 4-bit IN/OUT port)	Input
P70–P73	IN/OUT	4-bit IN/OUT terminal of Port 7 (4-bit IN/OUT port)	Input
INT 1	IN	External Interrupt IN	
X1, X2		To connect with Count Clock Oscillation Crystal (X1 for External Clock IN)	
CL1, CL2		For connection of System Clock Oscillation R and C (CL1 for External Clock IN)	
VDD		For Positive Electric Power Source	
Vss		For GND potential	
RESET	IN	Reset IN	

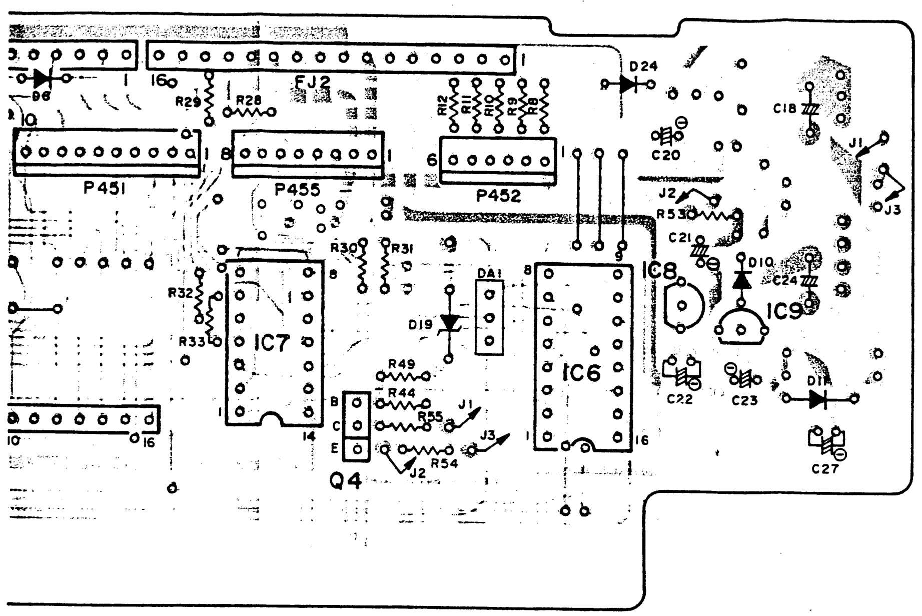
– SYSCON 1 –



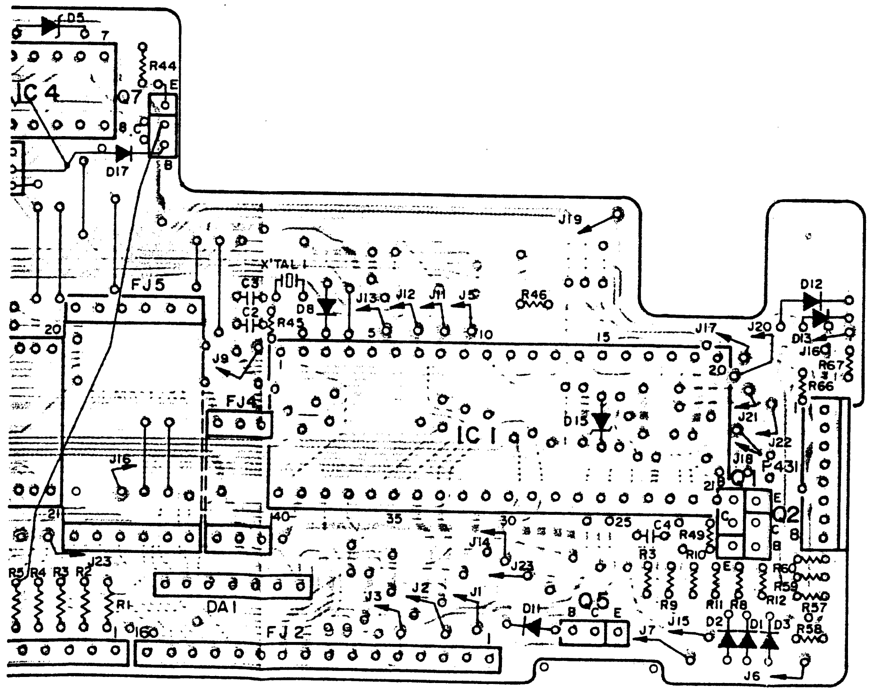
– SYSCON 2 –



H I J K L M N O

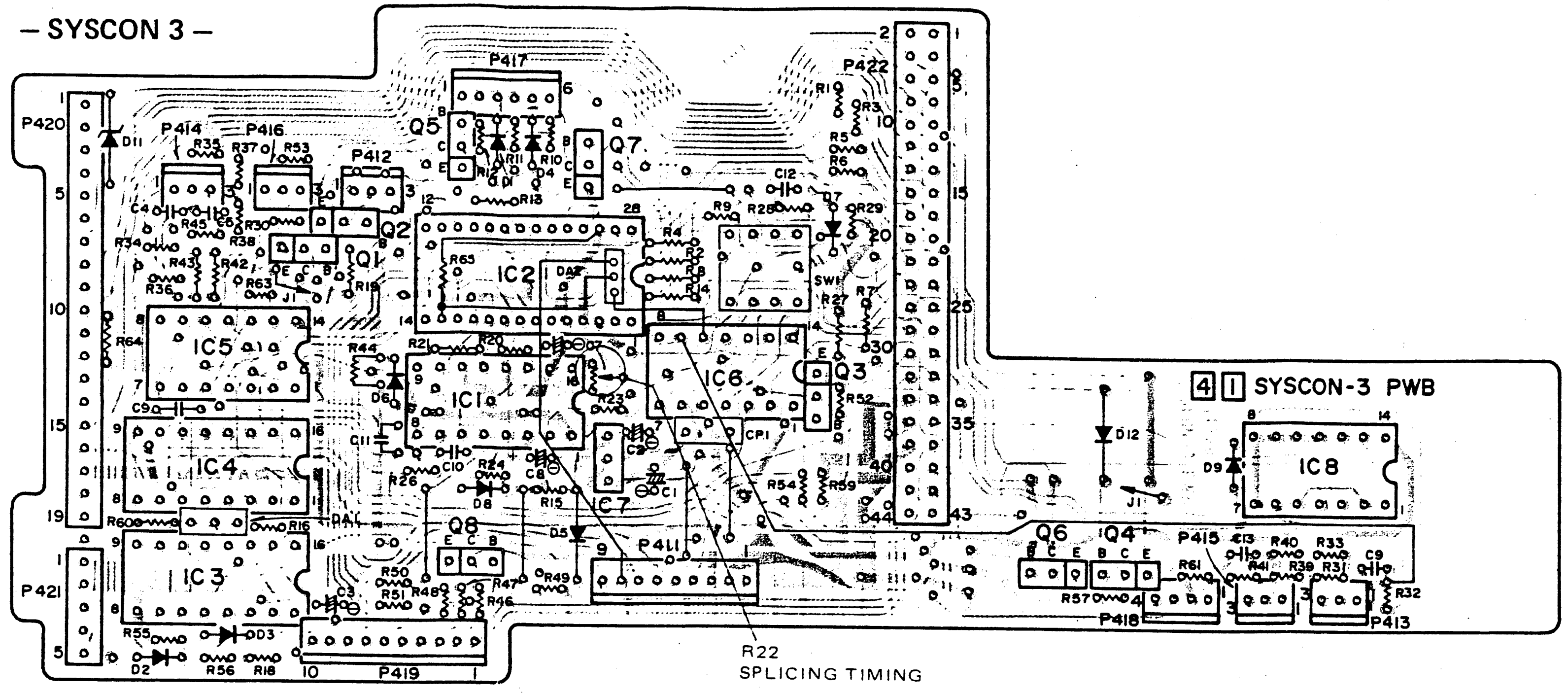


P451
P455
P452
FJ2
IC7
IC6
IC8
IC9
Q4
DA1
D24
D19
D10
C18
C20
C21
C22
C23
C24
C27
J1
J2
J3



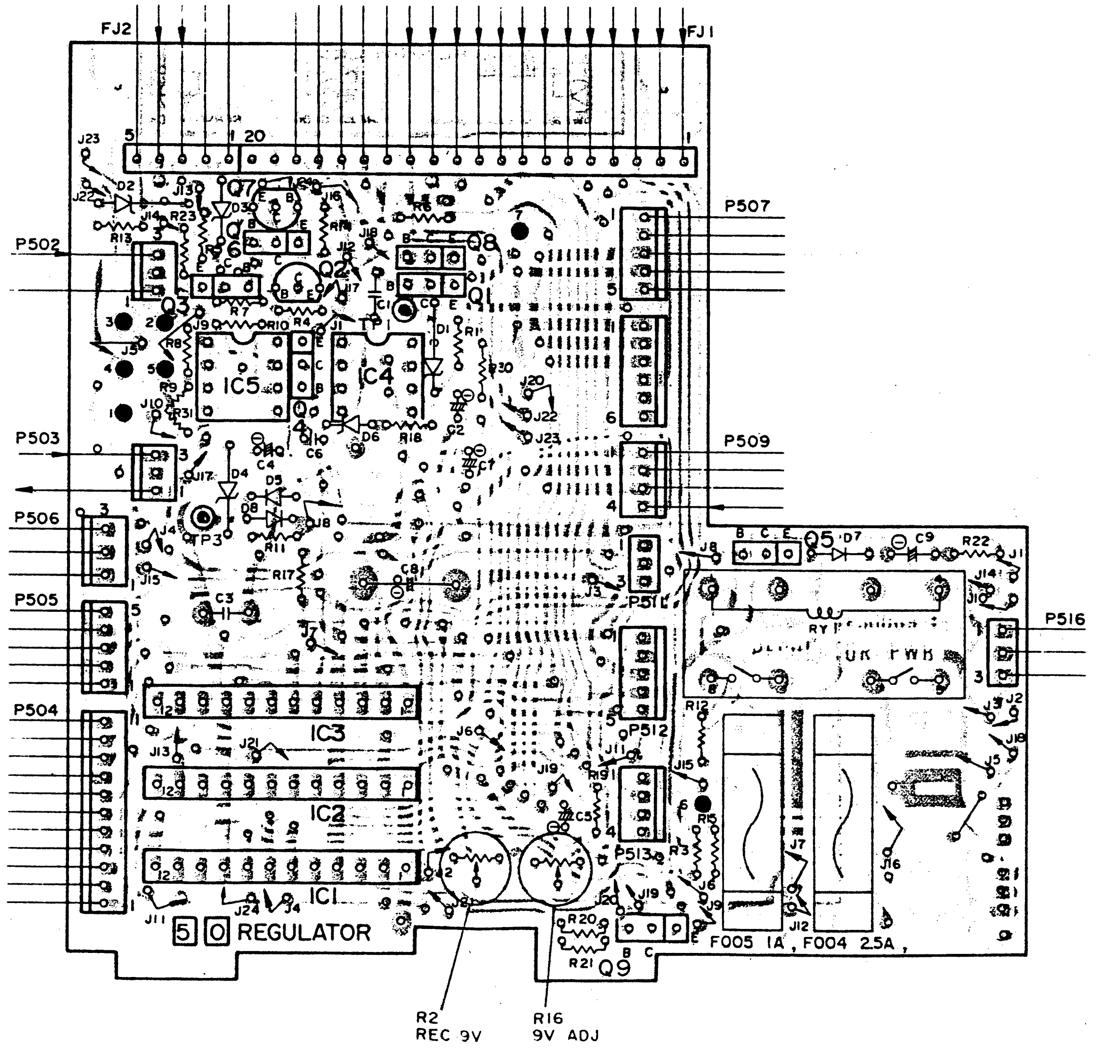
IC4
IC1
Q7
Q2
Q5
FJ5
FJ4
FJ2
DA1
X'TAL
P431
D5
D17
D12
D13
D11
J19
J20
J21
J22

– SYSCON 3 –



P417
P422
P420
P414
P416
P412
P421
P419
P411
P415
P418
P413
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
SW1
4 1 SYSCON-3 PWB
R22
SPLICING TIMING

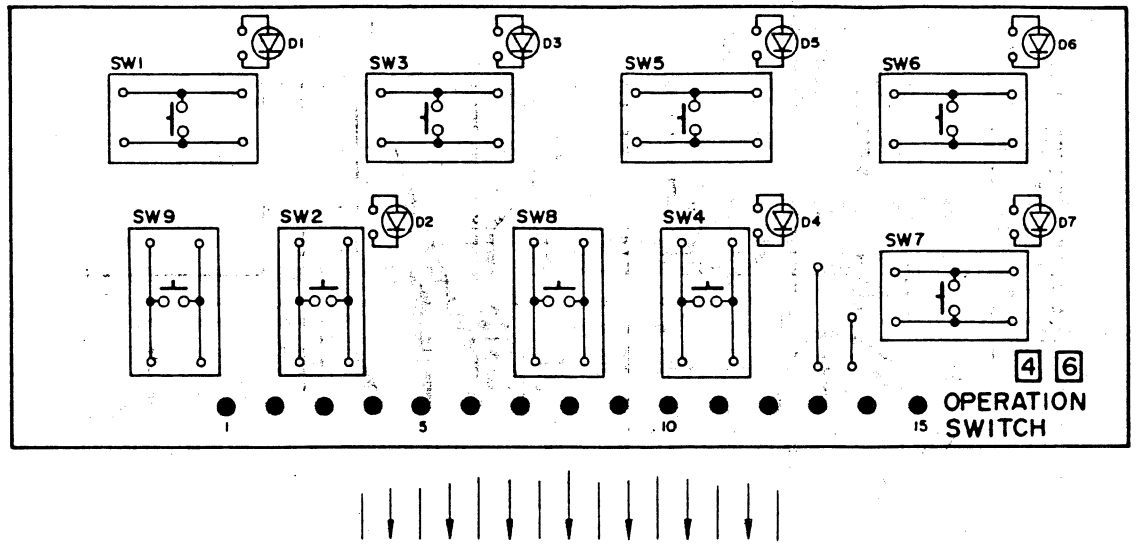
– REGULATOR –

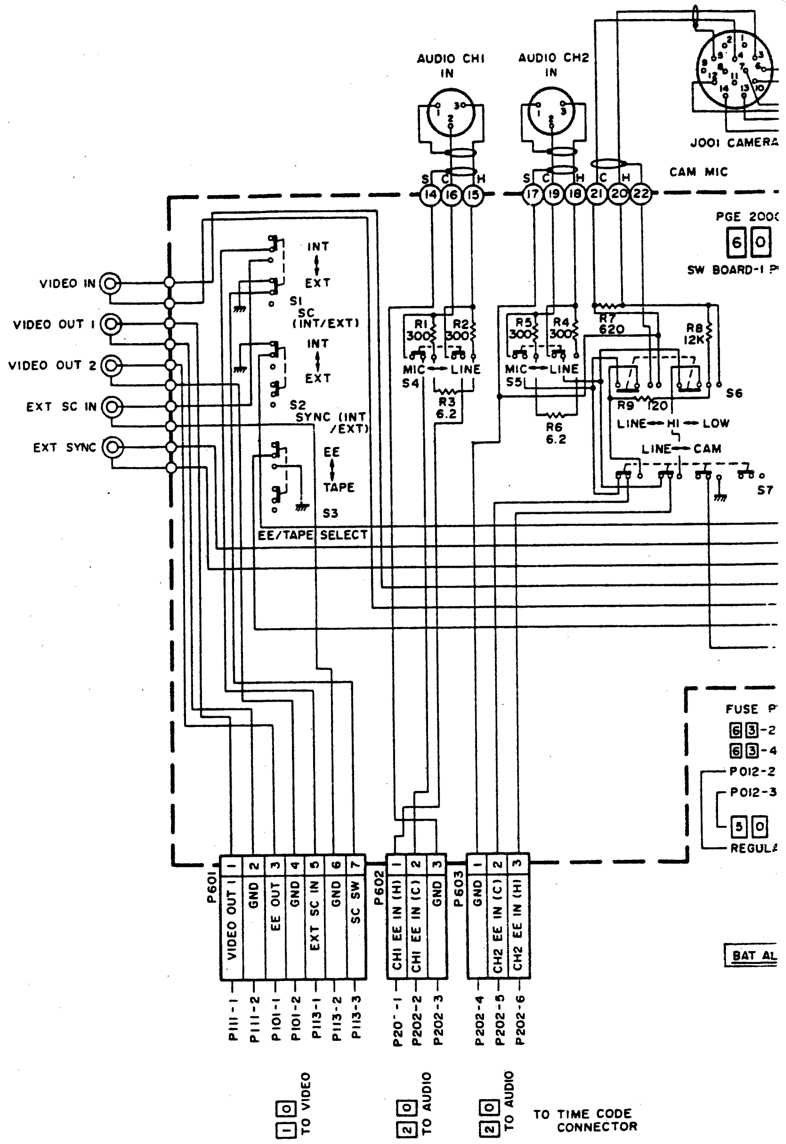


FJ2
FJ1
P502
P503
P506
P505
P504
P507
P509
P511
P512
P513
P516
IC1
IC2
IC3
IC4
IC5
Q1
Q2
Q3
Q5
Q8
Q9
TP3
RY
F005 1A , F004 2.5A
5 0 REGULATOR
R2
REC 9V
R16
9V ADJ

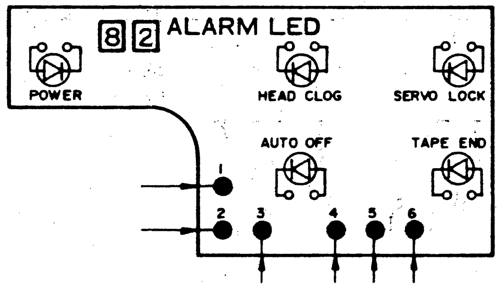
4.14 SWITCH BOARD-1, 2 CIRCUITS

– OPERATION SW –

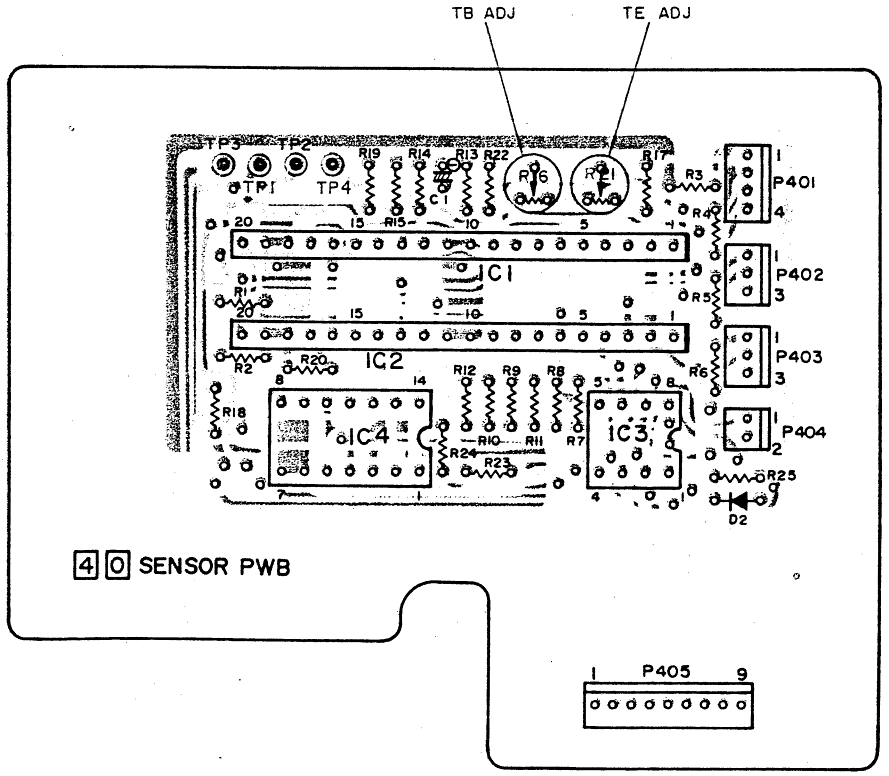

SW1
SW3
SW5
SW6
SW9
SW2
SW8
SW4
SW7
D1
D2
D3
D4
D5
D6
D7
4 6 OPERATION SWITCH
1
5
10
15


AUDIO CH1 IN
AUDIO CH2 IN
J001 CAMERA
CAM MIC
PGE 2000
6 0
SW BOARD-1
VIDEO IN
VIDEO OUT 1
VIDEO OUT 2
EXT SC IN
EXT SYNC
S1 SC (INT/EXT)
INT
EXT
S2 SYNC (INT/EXT)
EE
TAPE
S3 EE/TAPE SELECT
R1 300
R2 300
R3 6.2
MIC LINE
S4
R5 300
R4 300
R6 6.2
S5
R7 620
R8 12K
R9 120
S6
LINE HI LOW
LINE CAM
S7
FUSE
6 3-2
6 3-4
P012-2
P012-3
5 0
REGULA
BAT AL
P601
VIDEO OUT 1
GND
EE OUT
GND
EXT SC IN
GND
SC SW
P602
CH1 EE IN (H)
CH1 EE IN (C)
GND
P603
GND
CH2 EE IN (C)
CH2 EE IN (H)
P111-1
P111-2
P101-1
P101-2
P113-1
P113-2
P113-3
P201-1
P202-2
P202-3
P202-4
P202-5
P202-6
1 0 TO VIDEO
2 0 TO AUDIO
2 0 TO AUDIO
TO TIME CODE CONNECTOR

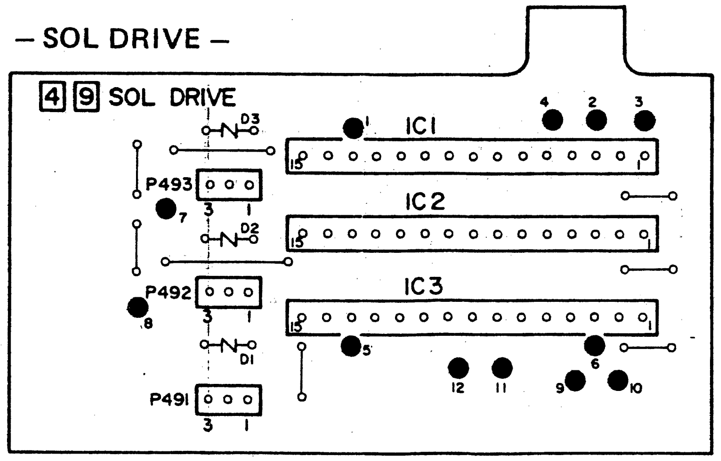
– ALARM LED –


8 2 ALARM LED
POWER
HEAD CLOG
SERVO LOCK
AUTO OFF
TAPE END
1
2
3
4
5
6

– SENSOR –


TB ADJ
TE ADJ
TP3
TP2
TP1
TP4
R19
R14
R13
R22
R16
R21
R17
R3
R4
R15
C1
IC1
IC2
IC3
IC4
R1
R2
R5
R6
R7
R8
R9
R10
R11
R12
R18
R20
R23
R24
R25
D2
P401
P402
P403
P404
P405
4 0 SENSOR PWB

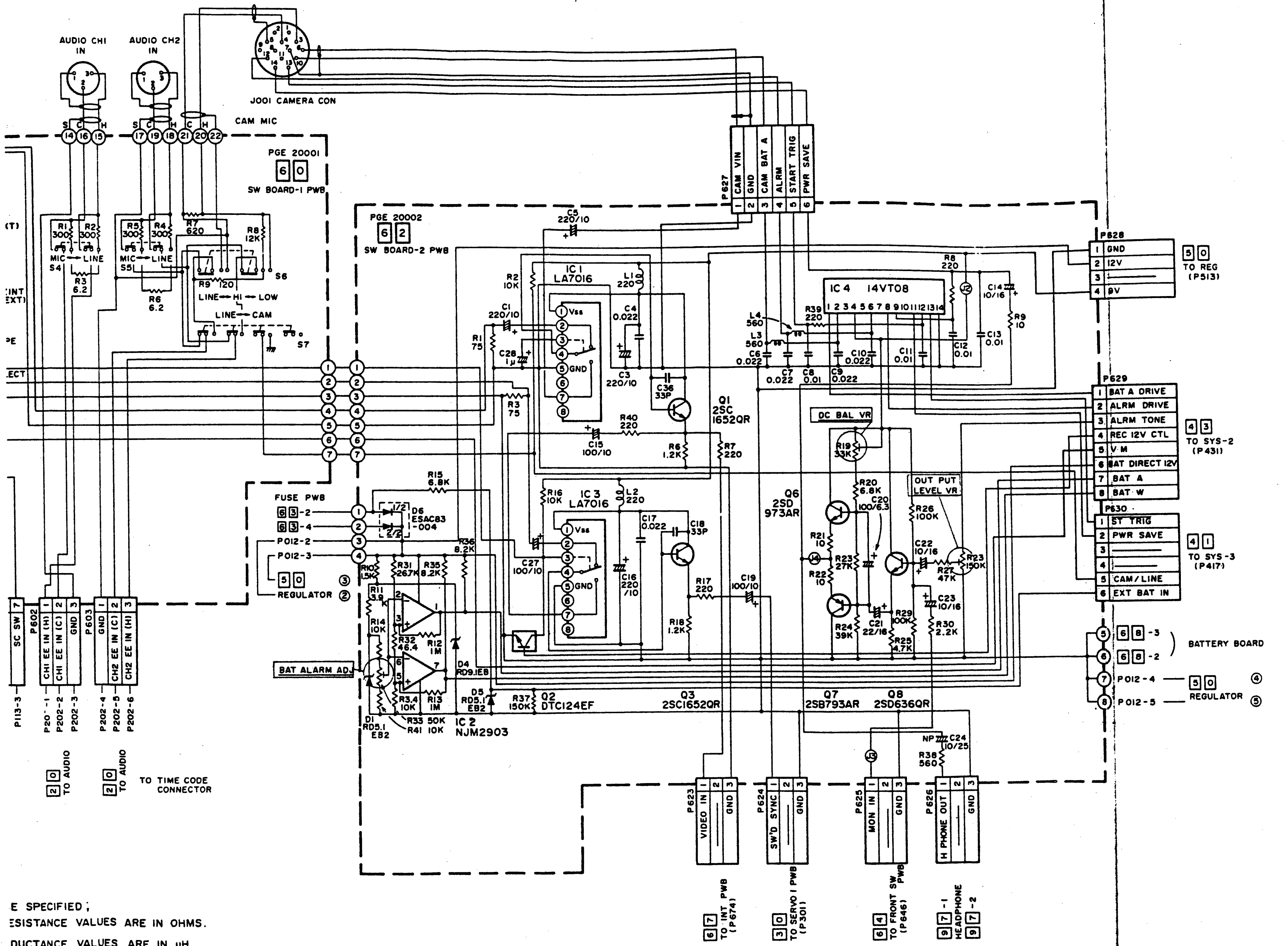
– SOL DRIVE –


4 9 SOL DRIVE
IC1
IC2
IC3
D1
D2
D3
P491
P492
P493
1
2
3
4
5
6
7
8
9
10
11
12
15

NOTE : UNLESS OTHERWISE SPECIFIED ;
ALL RESISTANCE VALUES ARE IN OHMS.
ALL INDUCTANCE VALUES ARE IN μH.
ALL CAPACITANCE VALUES ARE IN μF.
ELECTROLYTIC
NP NON-POLARIZED
MYLAR OR CERAMIC

H I J K L M N O

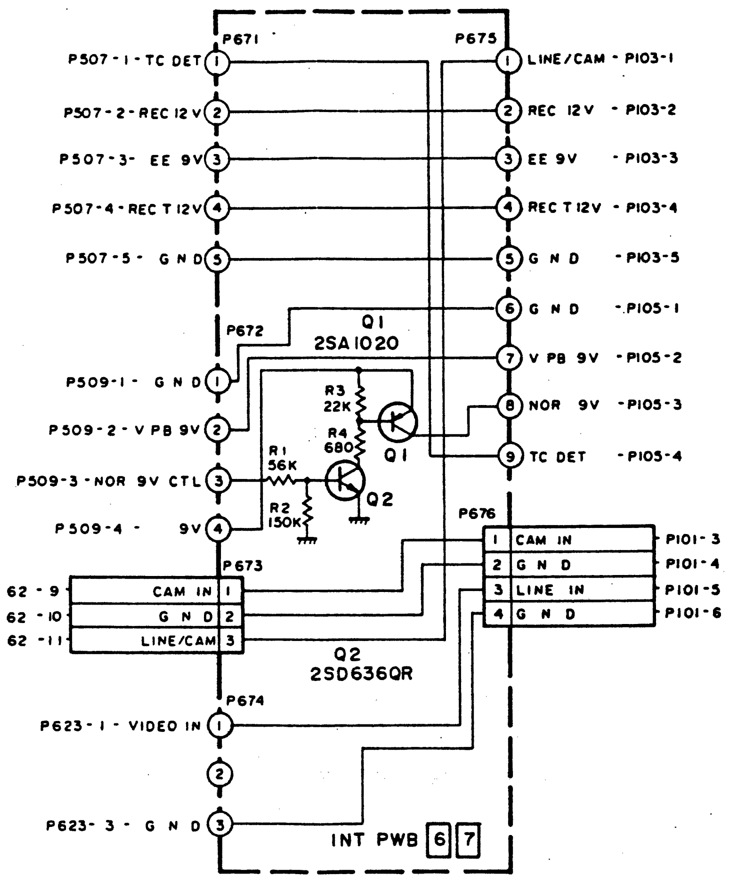
TS



AUDIO CH1 IN
AUDIO CH2 IN
J001 CAMERA CON
CAM MIC
PGE 20001 6 0 SW BOARD-1 PWB
PGE 20002 6 2 SW BOARD-2 PWB
R1 300
R2 300
R5 300
R4 300
R7 620
R8 12K
R9 120
R3 6.2
R6 6.2
MIC — LINE
S4
S5
S6
S7
LINE — HI — LOW
LINE — CAM
P627
CAM VIN
GND
CAM BAT A
ALRM
START TRIG
PWR SAVE
C5 220/10
IC1 LA7016
IC3 LA7016
IC4 14VT08
Q1 2SC1652QR
Q2 DTC124EF
Q3 2SC1652QR
Q6 2SD973AR
Q7 2SB793AR
Q8 2SD636QR
IC 2 NJM2903
D6 ESAC83 1-004
D1 RD5.1 EB2
D4 RD9.1EB
D5 RD5.1 EB2
DC BAL VR
OUT PUT LEVEL VR
BAT ALARM ADJ
FUSE PWB
6 3-2
6 3-4
P012-2
P012-3
5 0 REGULATOR
P628
GND
12V
9V
5 0 TO REG (P513)
P629
BAT A DRIVE
ALRM DRIVE
ALRM TONE
REC 12V CTL
V M
BAT DIRECT 12V
BAT A
BAT W
4 3 TO SYS-2 (P431)
P630
ST TRIG
PWR SAVE
CAM/LINE
EXT BAT IN
4 1 TO SYS-3 (P417)
6 8-3
6 8-2
BATTERY BOARD
P012-4
P012-5
5 0 REGULATOR
P602
SC SW
CH1 EE IN (H)
CH1 EE IN (C)
GND
P603
GND
CH2 EE IN (C)
CH2 EE IN (H)
P113-3
P20-1
P202-2
P202-3
P202-4
P202-5
P202-6
2 0 TO AUDIO
2 0 TO AUDIO
TO TIME CODE CONNECTOR
P623 VIDEO IN GND
P624 SW'D SYNC GND
P625 MON IN GND
P626 H PHONE OUT GND
6 7 TO INT PWB (P674)
3 0 TO SERVO 1 PWB (P301)
6 4 TO FRONT SW PWB (P646)
9 7-1 HEADPHONE
9 7-2

E SPECIFIED ;
ESISTANCE VALUES ARE IN OHMS.
DUCTANCE VALUES ARE IN µH.
APACITANCE VALUES ARE IN µF.
ROLYTIC
OLARIZED
OR CERAMIC

- INT -



P671
P675
P507-1-TC DET
P507-2-REC 12V
P507-3- EE 9V
P507-4-REC T 12V
P507-5- GND
LINE/CAM - P103-1
REC 12V - P103-2
EE 9V - P103-3
REC T 12V - P103-4
GND - P103-5
GND - P105-1
V PB 9V - P105-2
NOR 9V - P105-3
TC DET - P105-4
P672
Q1 2SA1020
P509-1- GND
P509-2-V PB 9V
P509-3-NOR 9V CTL
P509-4- 9V
R3 22K
R4 680
R1 56K
R2 150K
Q1
Q2
P676
CAM IN - P101-3
GND - P101-4
LINE IN - P101-5
GND - P101-6
P673
62-9 CAM IN
62-10 GND
62-11 LINE/CAM
Q2 2SD636QR
P674
P623-1- VIDEO IN
P623-3- GND
INT PWB 6 7

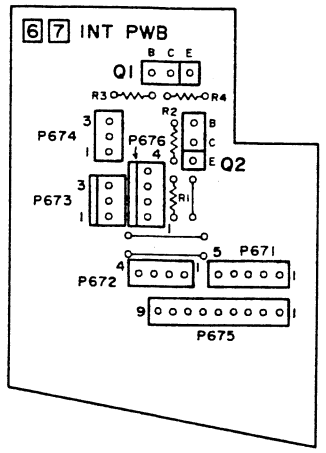
NOTE
UNLESS OTHERWISE SPECIFIED ;
ALL RESISTANCE VALUES ARE IN OHMS. 1/6W

TIME CODE, SW, INT CIRCUIT
(SYSCON & REG. BOARDS)

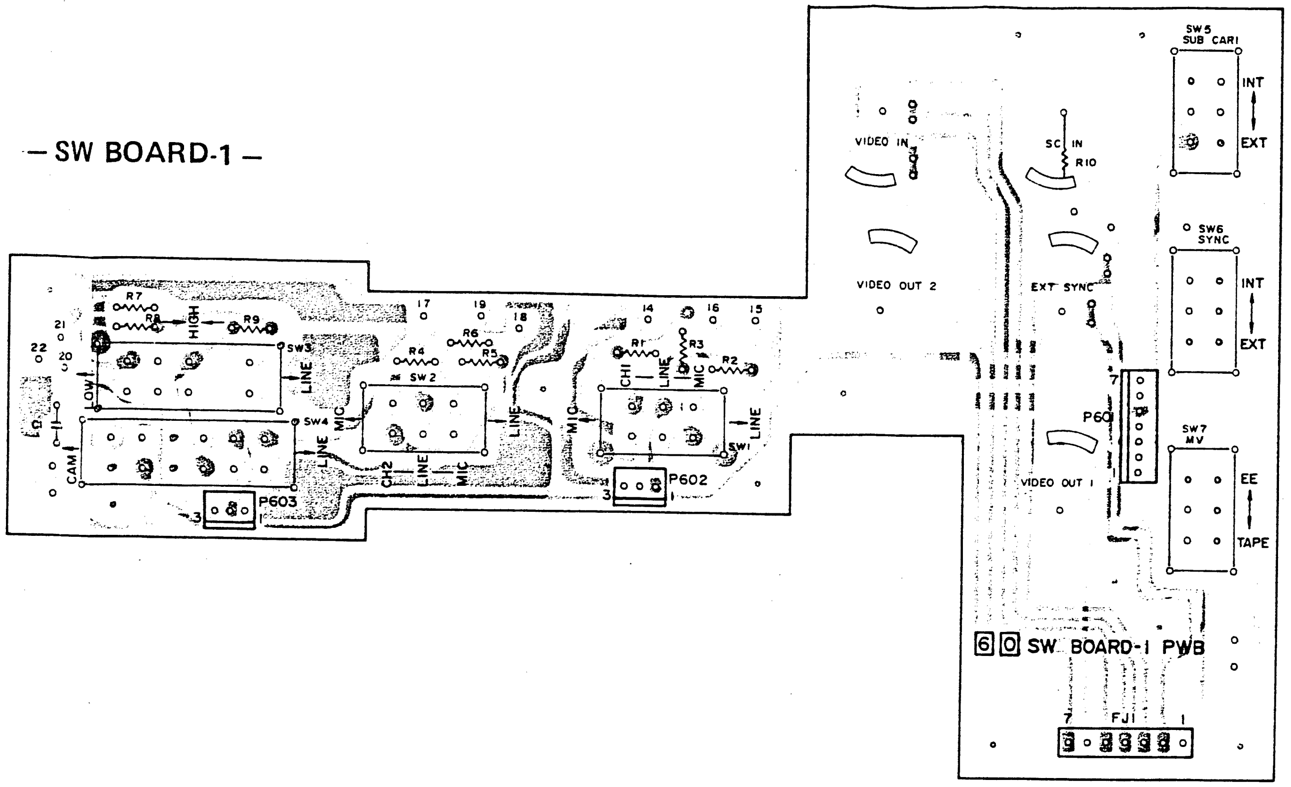
TIME CODE, SW, INT CIRCUIT
(SYSCON & REG. BOARDS)

4.15 INT. AND SWITCH BOARDS

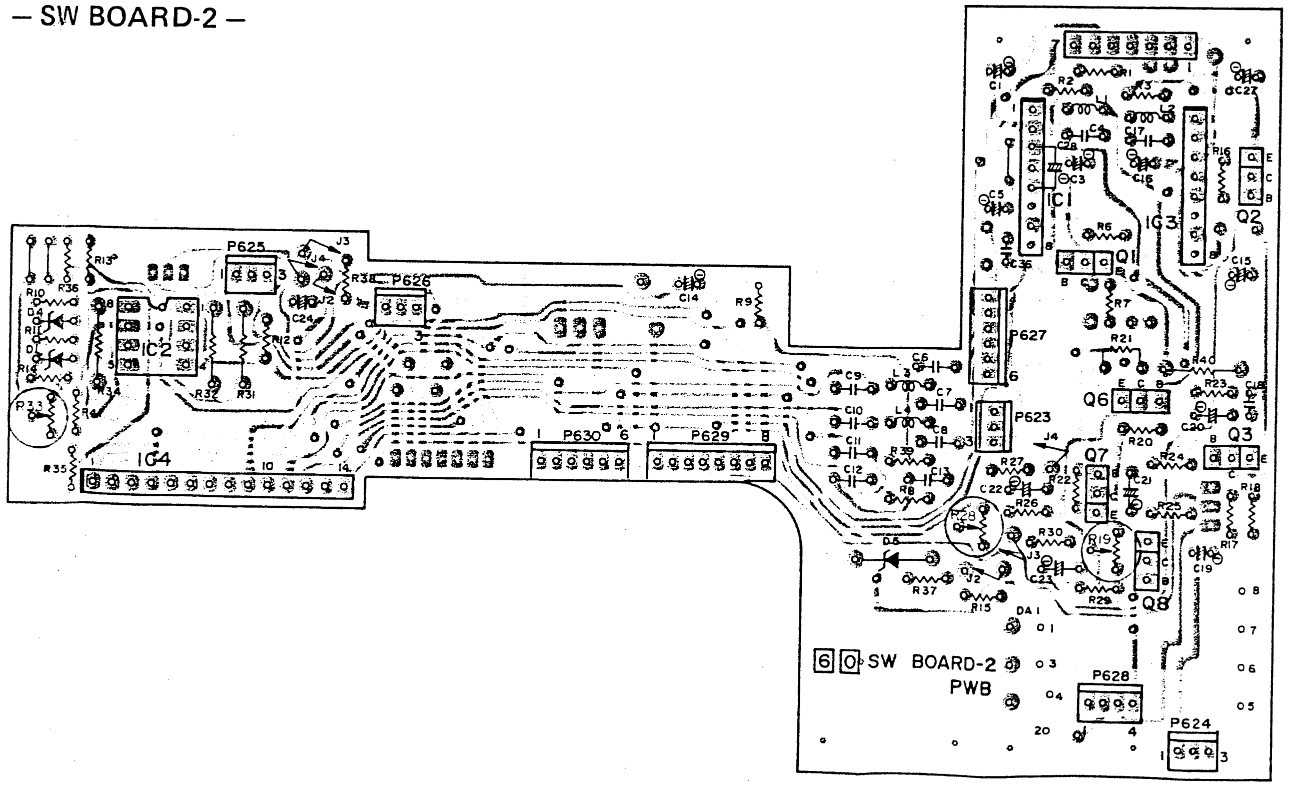
– INT PWB –


67 INT PWB
Q1
B C E
R3
R4
R2
Q2
B
C
E
P674
P676
P673
R1
P671
P672
P675

– SW BOARD-1 –


SW5
SUB CARI
INT
EXT
VIDEO IN
SC IN
R10
SW6
SYNC
INT
EXT
VIDEO OUT 2
EXT SYNC
P601
SW7
MV
EE
TAPE
VIDEO OUT 1
60 SW BOARD-1 PWB
FJ1
7
1
R7
R8
R9
HIGH
LOW
LINE
SW3
SW4
CAM
R4
SW2
R6
R5
R1
R3
R2
CH1
CH2
LINE
MIC
SW1
P603
P602

– SW BOARD-2 –


IC1
IC3
Q1
Q2
P627
P623
Q6
Q3
Q7
Q8
P625
P626
IC2
IC4
P630
P629
D5
DA1
60 SW BOARD-2 PWB
P628
P624